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Towards a proactive  
co-evolutionary type of planning  
within the Eurodelta

# Spatial Planning in a Complex Unpredictable World of Change

Editors  
Gert de Roo and Luuk Boelens



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SPATIAL PLANNING IN A COMPLEX UNPREDICTABLE  
WORLD OF CHANGE

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GERT DE ROO AND  
LUUK BOELEN

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# >> SPATIAL PLANNING IN A COMPLEX UNPREDICTABLE WORLD OF CHANGE

**Towards a proactive co-evolutionary type of  
planning within the Eurodelta**

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2016

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>> What to do about spatial planning in a world in change? We live in an era of tremendous change, affecting whole communities and societies financially, socially and spatially. The collapse of the major commercial bank Lehman Brothers on 15 September 2008 is seen as marking the start of a massive crisis which affected the entire Western world and beyond. The crisis – or better: plurality of crises – originated in a triad of excessive confidence: markets, governments and citizens persuaded each other for many years that money comes from nowhere and would invariably go on growing if ploughed into real estate, regardless the quality of the investment. How mistaken this all was – the certainty was false and all that was promised, implicitly of course, proved to be thin air. The economy may have taken a real blow, but all the other negative effects of the bad investments which had accumulated over the years also came to light, above all in the world of spatial planning. The consequences were not just a physical mess of unneeded development, but much more: the omnipresence of the financial, mortgage and housing crisis undermined the deeply entrenched faith in a Newtonian planning world.

Despite the communicative turn in the late eighties, the planning community still felt in control, a cornerstone in urban development, visioning both functional and liveable urban futures. The communicative turn was perhaps a response to acknowledging elements of uncertainty and the failure of a factual reality as a basis to work from. However, the response at first was to seek to regain certainty through agreements, resulting in an agreed reality. If there is one thing that this crisis made very clear, it is that an agreed reality is no guarantee of certainty either, if it is not viewed in close conjunction with a factual reality.

The crisis revealed to us an unfounded belief in a world of abundance, where actions could be taken without hesitation and without limitation. The collapse was tremendous, and every time there seemed to be a hint of a light at the end of the tunnel, another collapse emerged from nowhere. At the time of this book's publication – early 2016 – there is still no one willing or daring enough to say that the crisis is at its end. The pundits have been wrong too often and no longer dare to make promises, knowing that there are hardly any people left willing to listen to them.

What does this mean for the discipline of spatial planning? Clearly there is a message to be humble before truth and reality and to relinquish the idea of controlling them. Planners do not have that much control. In retrospect, it was easy to conclude that in conditions of constant population growth and with an economy in fairly good shape, a linear model of urban development would be relatively easy to maintain: the origin of the idea of certainty and control. The population in the Western world is no longer growing though; on the contrary, many regions and cities are facing population decline. Added to that, the



economy is proving quite uncertain as well. The two together impact on spatial development.

This all means that we have to consider a fundamentally different perspective on the role of spatial planning and its position in urban and rural development. Instead of planning aiming to achieve controlled development, it might get more out of the various autonomous processes affecting urban and the rural areas. In addition to planners being experts or mediators, we might appreciate planners becoming change managers, transition managers, adaptive responders and social entrepreneurs, supporting and guiding the various parties within urban and rural areas to find the positions which suit them best.

This book acknowledges these new identities and positions, with the planner acting as a manager of change. This book tries to present arguments in support of a discipline of spatial planning which adopts a different stance to the world, a more adaptive stance, and with a keen eye for self-organization processes: an eye for adaptive kinds of planning in a world of change.

This world is not undergoing change just because of the 2008 crisis. There is more going on which relates to the interdependency of global and local developments. To mention but a few: there are still huge numbers of people travelling the globe, seeking better places to live. The effect of climate change will also haunt us, in particular in the very many delta regions around the globe. These regions contain most of the global population, living in densely populated urban conglomerations. Instead of a spatial discipline seeking answers in content and process, the conditions under which change and development occur are becoming increasingly relevant. The discipline of spatial planning is at a turning point, as it has to acknowledge the major changes needed to allow our world in change to remain a pleasant, healthy place to live in.

Putting this book together has been a long, almost four-year story. It was originally intended as scientific advice to the government of the Netherlands regarding their stated ambitions to prepare a Seventh White Paper on Spatial Planning. This Seventh White Paper on Spatial Planning had to come up with answers to the global threats the Netherlands was confronted by. It was therefore expected to consider several prominent questions troubling the administration at the time:

- What are the recent scientific insights with regard to spatial planning and what impact should planning have with regard to the direction of spatial policy in the Netherlands?
- Which changes within the current spatial planning policy would offer the best chance of success in these times of crisis?

- What are the resulting challenges for the development and implementation of the spatial policy of state, province, municipality and/or other stake and shareholders?
- What would that mean for the division of responsibilities, tasks and roles and how to implement these changes?

To answer these questions as concretely as possible, seven topics needed to be covered:

- 1 Finding a new balance between growth and contraction in urban development;
- 2 Network orientation in top economic sector policies;
- 3 Regional development in relation to more sustained revenue models;
- 4 Transition towards slow food supply;
- 5 Transition towards sustainable energy;
- 6 Synergetic infrastructural and spatial developments;
- 7 Resilient preparations towards climate change.

In that respect a working seminar was held on 6 November 2012 to mark the beginning of a collaboration between scientists and practitioners which culminated in the international conference on co-evolutionary planning of the Association of European Schools of Planners (AESOP) of summer 2014. However, soon after the second Rutte Administration took office in the Netherlands, it became obvious that the government did not have any answers. While it acknowledged that traditional approaches were quite useless and even counterproductive, the government had no idea how to respond to the emerging challenges. Consequently, it deprioritized the preparations for the next Report on Spatial Planning. Instead, it decided to focus first on simplifying its enormous body of legislation. This major exercise was obviously full of good intentions and was a much appreciated initiative, but it did not yield any answers to how to tackle the serious problems confronting the Netherlands and its Delta region. Moreover, the Administration was also entangled in merging the former ministry of Infrastructure and Public Works with the former ministry of Environment and Spatial Planning, a process which dragged on from 2011 onwards. This had a huge impact on the role and position of national spatial planning in general and on prominent spatial practitioners and policy planners specifically.

On the other hand, and in preparation for the 2014 AESOP conference on co-evolutionary planning in Utrecht, the changes in views on spatial planning within a ceaselessly interconnected and complex world gathered pace, as new insights on adaptive, actor-relational and transitional planning approaches collided both with each other and with the traditional but also changing views on planning law, implementation and property rights (the 'traditional' professional core of planning).

Since the Vienna AESOP conference in 2005, AESOP has been debating the complexity of the world we live in, its non-linear behaviour, its sudden changes and the impossibility of controlling these. The AESOP community began debating the search for answers as to how to evaluate the very many autonomous and spontaneous developments which can be observed within urban and rural areas. Since 2005 the AESOP working group on complexity and planning has been most successful, having held a series of meetings and produced a number of books and papers. The complexity track at the annual AESOP conferences has been the second largest since 2010, with numerous scholars participating in the debate on non-linear development. It resulted in various new ideas emerging within the planning community, including coevolution, self-organization and adaptive planning. This book acknowledges these ideas and tries to present them throughout this book in story lines which are meant to open them up and make them accessible to spatial planners.

This book can therefore be regarded as an invitation to a planning profession in transition in more ways than one. As originally signed-up authors dropped out, others stepped in to take their place. The idea of a reciprocal advice for a new White Paper on Spatial planning was dropped and the book refocused on the role of spatial planning in an world of continuous change. It addresses the changing views of planning on increasingly nonlinear, unpredictable situations and patterns which are the result from unintended actions. Some would consider a planning response to these situations, patterns and actions are only possible from the bottom up, in a highly collaborative or coalition-oriented manner. Nevertheless, this book also claims that intentional planning is neither dated nor outdated. It is still quite essential with respect to the seven major social challenges mentioned above. However we consider it innovative to do this in conjunction with for non-linear, adaptive and transformative understandings and approaches.

The book is divided into two parts – the generic and the specific – to report on our quest for new models for co-evolutionary governance and planning in an increasingly complex and self-organizing society. The second part applies these new views to specific challenges in real life practice. Paradoxically, each of the chapters in this book can still be used to consider the current Dutch administration's reformulated ambition to expand its vision on space and the challenges mentioned above. Moreover, these challenges are not only increasingly recognised in Dutch society as such, but also within administrations elsewhere. Therefore, this book has to be regarded as a prominent transitional step in the ongoing quest for the best reciprocal adaptation of space and society, for the interests of society.

We first have to acknowledge that this book has required quite some patience from its various authors, in particular those who were eager to participate from

the very beginning. Many, many thanks to them for supporting the project all the way. We also thank those scholars who came on board during the project, as a positive response to our invitation to bridge gaps we believed that were there and had to be covered. We also thank the publisher InPlanning for its full support and its faith in the product we promised. Many thanks to InPlanning for its wonderful distribution of the book among the AESOP planning community, freely and digitally, and for allowing us to share the book without hesitation with anyone with an interest in new developments within the discipline of spatial planning. Their approach to disseminating the book seems as innovative to us as the book's own message to the planning community: think differently, and adapt to the changes surrounding us. We wish you a pleasant read.

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January 2016



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# >> Setting the scene

## About planning and a world in change

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Gert de Roo and  
Luuk Boelens

>> Today's world is predominantly urban. Most urban regions are located in delta regions. And delta regions face severe pressures because of their fragile environments, their delicate relationship with existing ecological habitats and coastal zones, which need protection, and the increasing constraints and threats due to climate change and sea level, rise. Delta regions are under pressure. Spatial planning is one of the means to maintain quality of living in delta regions. Spatial planning has a strong tradition in taking 'here and now' decisions to responding to problems and difficulties, with not much difference in technical and communicative approaches. If spatial planning wants to be supportive to transformations at various levels of scale in urbanized delta regions alternative time related approaches are desperately needed. The plurality of urbanized delta regions forces such time related planning approaches to be emergent, adaptive, co-evolving and transformative in nature. It means planning has to embrace a non-linear understanding of space and place. This book is meant as an introduction to non-linearity and spatial planning.

The Netherlands are part of one of the most dense and spatially advanced delta regions in the world: The North-West Euro delta (hereafter Eurodelta). The Netherlands have also been considered to be a true planners' paradise. The country is thoroughly planned in all possible ways, including land use plans for forests, rivers, the sea and even its upper- and underground. It's a micro-cosmos, which allows us to study planning behaviour in the greatest detail. Here the planner is expected to act in harmony with society's needs and desires. As such the country is also expected to be a planners' lab and a source for in depth debate considering new developments in support of the planning discipline (Van der Cammen et al. 2013; Boelens et al. 2011; Hartman et al. 2011; Meyer 2010; Wagenaar, 2011 ). This situation has evolved into a highly sophisticated planning machine. At the same time this sophisticated system is also holding on to successes of the past, its commitment to a thorough planning at a micro level, its institutional robustness, and the strong focus on the decision making at the here and now. This sophisticated system has become a constraint in developing real innovation with regard to present post-industrial social needs on the one hand and the immense spatial turnover needed to respond to climate change. Neither socio-democratic guidance in a makeable world, nor recent neo-liberal decentralisation and deregulation policies will help here. Neither command-and-control nor laissez faire will do the trick. A new kind of commitment is desired between policy making, spatial transformation and citizenship to respond to the multiple processes at various levels of scale. One of the conditions for such a commitment is taking spatial transformations seriously in the sense that such transformations have their own dynamics and these dynamics prevail over humans' desire to create a world to their liking.

Belgium contrasts in various ways with its neighbouring country, the Netherlands. Due to its fragmented layout, unbridled sprawl and far fewer

spatial regulations, it was pronounced to be ‘the most ugliest country in the world’ (Braem 1968). It would lack structure, clear ideas and even the will of its citizens, and therefore politicians, to mould space beyond the realm of its individual parcels. While this might be less apparent at first glance, during the last decades, Flemish planners are repositioning themselves to find their own pragmatic ways within this fragmented, indifferent and sometimes even hostile planners’ world (Albrechts 1998, Van den Broeck 2006, Dehaene 2013). Until now, innovation in Flemish planning – if appearing at all – remains small, marginal, academic, internal and highly short-lived, because they won’t find sufficient back-up in mainstream policies. What Belgium has in common with its neighbouring country is its planning system being stuck too in policy frames which prove hard to open up for a debate with regard to change.

Both areas however are part of the greater Delta Region of the rivers Rhine, Meuse and Scheldt. It was a region where traditionally its inhabitants had to adapt themselves continuously to the changing, and sometimes-unpredictable circumstances of tide, flood and shifting river courses. It is a region where at the moment some 20-30 million people live (depending on how the Eurodelta is exactly defined), and where the headquarters of some 20-25 transnational corporations of the Global Fortune 500 are located. These are highly specialised in trade, logistics, global energy supply and knowledge intensive business services. Changing global market conditions have therefore more or less instantaneous effect on the Eurodelta’s economic competence, and consequently spatial opportunities, mobility, pollution, and even social & demographic changes, income rates, care & cure, food supply, energy transitions, climate change etc. Although some kind of anticipative planning on possible future circumstances seems to be conditional to survive in delta regions, the growing complexities, fragmentations, new cross-overs, within fragmented institutional settings and especially the growing pace in which these changes are happening, makes planning in fact illusory beforehand. And confidence in authorities, policies and politicians will erode, if these stick to traditional and contemporary institutional structures. In this book we want to proceed in this ‘planning paradox of Delta regions’, confronting current practices with new and innovating perspectives to spatial planning.

These new perspectives are all about addressing the non-linear side to planning, as we take the stand the world around us is not a given fact, nor is it a reality we all fully agree how to take it. The reality we embrace is a world in discontinuous change, a world constantly in a flow, being ‘out of equilibrium’ and therefore open to autonomous and self-organizing mechanisms. We are convinced that planning is not only reserved for planners or specialized planning agencies. In fact many different (possibly self-reliant) organizations, institutions, individuals and businesses plan in different areas of life, economic, social and biological survival, self-esteem etc. At the same time, we believe that space is

not something outside us, a kind of abstract platform whereon different kinds of actors act. But we are convinced that each of those (planning) actors in fact condition space, or at least attempt to do so, as that they (and in fact each of us) are reciprocally conditioned by it. Planning of Delta regions therefore relates individual actors, processes of urban transformation and macro influences such as climate change as interdependent phenomena and as multiplicities, which have impact at various levels of scale.

This perspective of a world progressing more or less 'interrelationally autonomous' beyond spatial planning is fundamentally different to the planners' perspective in the previous century. Controlled realities, often misinterpreted as planners' creations, are no longer the only promising perspectives. Agreed realities, products of consensus and collaboration, and dominant in the debate of the last thirty years (Sager 1994, Innes 1995, Healey 1997, Woltjer 2000), are under pressure as well. Important as these agreed realities still are, these have positioned spatial planning in the corner of area specific, and stakeholder related, shared governance issues. Present developments are much more multi-levelled and multi-(f)actored, and include cross borders linkages a physical, social and institutional sense. Such developments show agreements being contested at the very moment they are made, and trigger agreeing opportunistically about opportunities, which have never been on the agenda. In other words, these developments which are likely to increase in the time to come, generate a range of institutional consequences which have never been part of the policy, planning and institutional traditions from the past. These issues all relate to the same question: how to consider and plan in a highly dynamic and unstable world that has become increasingly complex, unpredictable and fuzzy? Are we able to find alternative paths to the technical planner within a controlled world and a mediating planner within an agreed world? Are we able to reinvent ourselves as planners, accepting a probably more realistic view, which is a world in continuous change? And if so, how would this planner look like, and its attitude and approach to this world in change? In this book we will present three lines of thought as possible answers to these questions:

- a introducing non-linearity in planning,
- b involving self-reliant co-evolutionary perspectives, towards
- c fuzzy actor-relational planning mechanisms.

## NON-LINEARITY IN PLANNING

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>> Considering 'a world in discontinuous change' means considering a world in which space and place are changing anyway, as well at expected and at surprising moments, with or without the interference of the spatial planner. So one could ask: is the planner obsolete? At the same time and as said before, the

changes are interrelational, reciprocally conditioned by many actor-networks crossing various scales and themes. Of these actors spatial planning is at best only one partner, let alone being the most prominent or dominant as they are often expected to be. Nevertheless differently from creating futures or differently from mediating towards agreed futures, the planner could seek for supportive or adjusting mechanisms of flows towards the future. From this perspective the spatial planner is in fact only or at least mostly responding, anticipating or adapting to changes, which are considered to be more or less evolving autonomously and in various directions. These differentiated autonomous changes are considered a 'natural' phenomenon, a phenomenon that cannot be denied if we like it or not.

Such a phenomenon is in strong contrast to linear change, induced strategies and direct causal mechanisms, resulting in moves, which are both, intended and expected. Proposals for linear change frequently include the idea interventions will lead to predefined results due to controlled actions taken. These are excluding or ignoring both fuzzy internal and external interactions and discontinues contextual influences, while these interactions and influences might generate various non-linear and discontinued processes. We are convinced that the present world is full with such non-linear processes, presenting linearity as an exception instead of a commonality.

And this conviction has a major impact on planning. Aside from a whole new set of notions to planning, such non-linear perspectives asks for an entirely new mind set to consider the world we inhabit. This new mind-set is not constructed around the idea of control, a product that has been built upon neo-positivist foundations of a knowable reality, a realist perspective or an object-oriented view to the world. It is neither a world solely constructed around the idea of intersubjective interaction, which has revolutionised planning in the nineties towards a relativist, communicative and discursive perspective.

Although we think that both object oriented, and more process oriented intersubjective perceptions have been assets of importance to planning, we are also convinced that these perceptions are only valid under specific circumstances. An object-oriented view is functional in 'simple' or straightforward situations. An intersubjective view is appreciated in situations, with numerous actors and factors making it rather hard (if not impossible) to get a clear picture of these situations a priori. Multiple interpretations, interests and ideas desire a process of consensus seeking, which hopefully will result in an agreed reality and agreed certainties to work from. We will come back to this in the concluding chapter. But next to that we are also convinced that in the present world simple or straightforward situations are highly exceptional, while discursive approaches often lead to middle of the road or 'one size fits all' solutions, leaving interests, ideas or even whole populations – not fitting in – behind. In the present fuzzy, complex and differentiated world these interests, ideas or populations are becoming ever bigger and more regular. Therefore

the classic object-oriented and intersubjective perceptions can't be valid as a dominant paradigm anymore.

Our proposal would not be to throw the babies with the bathwater away. Technical approaches of planning are still very much valid, in a world which is straightforward, certain and predictable. Communicative approaches are very much needed in situations, which are highly complicated as these are full of actors sharing the same difficulties despite differences in perceptions, interests and ideas. Additionally, in non-linear situations we need a highly adaptive planning, in which various alternating but engaged combinations of both object oriented and intersubjective approaches will have to be considered to get a grip of the specific and changing situations at hand.

This understanding of a differentiated world, a world full of contrasts, a world with various shades of grey, means we embrace a relationalist perspective, based on various degrees of (static and dynamic) complexity. Each specific category of (spatial) issues will have to be dealt with by a specific group of planning approaches; situations being not all alike, but being different in serving specific, prominent and continuously changing networks, coalitions and collectives present. Non-linearity, being the abstraction of dynamic and complex adaptive behaviour, is fundamental in the sense that our perspective to the world will no longer be oriented towards 'being' but predominantly towards 'becoming'. Traditionally this 'being' is seen as the moment in which we are being confronted with difficulties to be counteracted through decisions made here and now. Consequently these decisions – either based on the certainty of facts or on consensus how to handle uncertainty – have to result into predefined outcomes and a desired future. In other words: our traditional understanding of space and place is strongly focused on a fixed present out of which a predefined future will follow. With this focus on 't = 0' – a frozen momentum, a fixed environment or a snapshot in time – our understanding of space and place has been more or less linear, determined, predictable and therefore (at least to some extent) a-temporal. Instead non-linear planning is taking time to the essence, always awaiting – no better still – looking for the unexpected, driven by becoming instead of being, hoping to serve the evolving and changing needs of specific coalitions and collectives in a dynamic time-space way. It is more than the parts constitute the whole as it includes contextual interferences as well, and will have to include time related issues such as path-dependencies, lock-ins and innovation. In other words: non-linearity is the abstraction of dynamic and complex adaptive behaviour.

## INVOLVING CO-EVOLUTIONARY PERSPECTIVES

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>> Considering (spatial) arrangements and assemblages beyond their static and linear complexities is just one step away from a perspective which is

increasingly gaining popularity and which is slowly drifting away from being exotic towards mainstream science. This is the perspective of co-evolutionary processes. It is derived from the ecology approach, which understands non-linear developments through time as evolutionary states of becoming. The ecology approach considers mutual interdependence between actors and factors of importance and between the macro-, meso- and microlevels of interactions as fundamental. It appreciates contextual interference in (eco-) systems to explain the systems' behaviour and evolution. This approach has influenced various disciplines within the social sciences. Examples are evolutionary economics, evolutionary geography, evolutionary management, evolutionary demography, evolutionary sociology etc. It refers to notions as inheritance-survival of the fittest-variation, routines-competence-innovation, path-dependencies-lock-inns-crossovers etc. Recently it has been extended with the notion of co-evolution.

In co-evolutionary processes both structure and function of a system will change in such a way that the fitness of the system increases and the fit with the system's environment will improve (Holling 2001). Going beyond the more or less deterministic visions of traditional evolutionary approaches, co-evolutionary sociologists, in turn, stress that the human capacity to cooperate is not only dependent on specific evolved individual, genetic or psychological abilities; it also rests on humans' ability to acquire beliefs, values, ideas and practices from others, e.g. the capacity of cultural learning, interactively, resulting in cultural evolution (Durrant/Ward 2011). Over time and space they influence each other continuously: in fact, genes and culture co-evolve.<sup>1</sup> Similarly, co-evolutionary economic geography tries to understand economic innovation through the changing spatial distribution of firm routines over time and space (Boschma & Frenken 2006). Regional economic prosperity is not so much analysed as an outcome of spatial improvements or shifts in global power blocks, but primarily as an outcome of innovation in interactive behaviour of firms in co-evolution with related sectors and/or networks, technologies and territorial institutions and their convergence/divergence in spatial systems (Boschma & Frenken 2011).

According to Prigogine, these open and responsive systems are considered to be dissipative. Such systems are gaining energy, matter and information from contextual interaction allowing them to reorganize for a better fitness: internally through a process of self-organization and externally through adapting to outside influences. Such open systems are thus adaptive to change and capable to self-organize. They are able to evolve through time, co-evolving externally in interaction with its context and co-evolving internally as both its structure and function might fundamentally change. Such a system is considered to be a complex adaptive system, and capable to self-organize as long as this system is in a situation out-of-equilibrium (Prigogine & Stengers 1984, Allen 1997, Batty 2005, Portugali 1999).

<sup>1</sup> As an example, Durant/Ward (2011) and Wrangham/Carmody (2010) refer for instance towards the widespread cultural practice of cooking, which in turn had major effect on anatomical changes in humans, as well as on their (social) behaviour.



These systems are important to understand dynamic complex behaviour. Non-linear and dynamic complex behaviour is the result of complex adaptive systems interacting within a world out of equilibrium. Systems positioned in a situation 'out of equilibrium' will find themselves in an environment, which is in flow, always trying to reach 'equilibrium' but never reaching such a state. While a wider whole is being in flow energy, matter and information are being passed on from system to system, and trigger responses by these systems, adapting to external change and self-organizing internally, to adjust itself towards a better fit with its external environment.

In the ecological approach systems in (static) equilibrium are considered as dead systems. In the same way traditional planning behaviour, which is meant to control space, being restrictive to change and separating functions 'sustainably', is focussing on maintaining a 'status quo'. This traditional planning is concerned with functional arrangements in space. Notions such as change, development and progress are not part of the vocabulary. As such old planning behaviours could be regarded to deal with a static, in evolutionary terms, 'dead world'.

Considering a world in change due to processes of flow and their evolutionary trajectories, this traditional kind of planning will quickly become counter-productive constraining development and progress. Therefore we need to seek for co-evolutionary alternatives to traditional kinds of planning and decision-making. This seeking will include 'situatedness', dynamics, flow and non-linear change.

If we are willing to take these notions and their meanings seriously, this could result in a better understanding of the various ways urban systems are progressing or developing, including feed forward loops, transitions and emerging networks. The main question to answer is: can we find tools and approaches for this kind of forwarding, change and processing, which are as obvious to use as the tools and approaches we know so well from a traditional and contemporary context?

## ACTOR-RELATIONAL PLANNING MECHANISMS

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>> This brings us to the third proactive line of thought; that of actor-relational planning mechanisms. With a non-linear understanding of the world and a complexity sciences perspective we are able to move beyond static, planning 'at the here and now', a-temporal and 'dead' planning, a planning which makes (periodically) snap shots from which linearly possible futures are derived (if necessary in several scenarios). However in understanding at an individual level the responses to such a non-linear world full of complexities, we have to start with the living, changing and evolving actors or agents themselves. One of the routes to take is embracing assemblages, another is Actor Network Theory

(ANT). ANT is increasingly gaining popularity among planning scholars. Both assemblage theory and ANT suggest to move beyond the sociology of the social, and to start with the social itself again: the evolving and translating actor-networks themselves (Law 1986, Latour 2005).

Most planning scholars are convinced that planning has to move beyond its prime tool 'the plan' and beyond its privileged position: 'the restrictive confines of governments'. Because the plan – how development oriented, procedural or reciprocal it might be – represents in fact the institutionalised guidelines, a generalized manual how to gain pre-fixed futures. It is not so much driven by output, nor by outcome; but about 'becoming' and mainly about 'how to get there'. The past shows us both the plan and the planner can be a dominant actor, representing an organisation or an exclusive alliance moulding and framing ideals or exceptions within a central objective or excluding interests which do not fit in; or more important excluding cross-overs as these are seen as fuzzy and out of line with the concept of control. Nowadays we begin to become aware of such initiatives being essential for innovations to take place. Nowadays we see more and more planners encouraged to find new mechanisms how to navigate through complexity. Such navigation will always include an object orientation, as well as intersubjectivity, in various combinations. However planning approaches should also be open to processes of adaptation as the world of planning is not fixed and frozen. This world of planning and the issues at stake are open to change and transformations within time and space. The new planning tools could be a stories, facts and symbols from citizens which reflect liveability of space and identity of place, memories about past glories or hopes for a new world, and evolving networks promoting open and changing alliances etc. Tracking & tracing, opportunity mapping, alliance diagramming and open financing & agencying are part of that kind of cartography (Sanders/Boelens 2009). These kinds of a so-called 'Deleuzian cartography' (Hillier 2006) could deliver new tools which resonate the interests, ideas and thoughts of actors and agents, participating in a process towards a more open and innovative planning future. This book will elaborate on those initial proposals.

But the same goes with regard to the classic and privileged government based position of planners; they have to move beyond representative governments and especially beyond the restrictive confines of those governments. Because those confines – how flexible they might be – are always legitimized for the sake of the society as a whole, the represented majority of that society, or the institutional commitments and bureaucratic frames superimposed on (parts of) society. Sometimes governmental planners even defend minority interests, claiming that specific weaker interests have to be defended against the stronger ones, or those of the unborn against the present ones. Although we think that this bold position of planners is appealing and that we shouldn't throw it right away, we are also convinced that in an ever more complex, differentiated, dynamic and cross-bordering world, such thing as 'the society as a whole' hardly exists

anymore. The same goes for the needs of the individual; how can planners be the representatives of their spatial desires and needs, pretending to know those needs of the future, in an ever non-linear world?

Representation, or more specific representative democracy – on which planning relies heavily – is therefore already strongly and widely disputed (Harvey 1989, Cohen & Rogers 1992, Gans 2003, Hirst 2001, Swyngedouw 2004, Purcell 2008). Representative democracy would widen an already existing gap between the representative democratic bastion and the daily lives of citizens and businesses, mediated through a bureaucracy, which has still an incentive to control. The middle of the road, 'one-size-fits all' policies of representative democracies wouldn't be no longer adequate for a growing pluralism in present day society. Furthermore representative democracies are often synonymous to a planning which upholds the idea of objects being isolated entities and functions to be separated from each other spatially. And an institutional design focusing on strongly hierarchical stratified functions according to different scale-levels to deal with bigger issues, while in present day societies many (spatial) questions cut right across different levels or just fall in-between.

In the last decades many alternatives have been sketched to deal with those issues in a better way. In this book we take the stance that a more associative democracy would fit in with the non-linear and co-evolutionary approaches described before. We include in our plea for a more direct self-managed (in)formal governance, promoting an organic representation of currently underrepresented interests, and thus encouraging the formation of plural, independent associations around specific interests. It would fit in with an ever-changing world and would coevolve with the specific interests and actor-networks at hand. Although associative democracies will occur next to representative democracies, for planners it would mean to move more and more beyond representative governments, and to serve emerging self-managing and self-regulating (if necessary multi-level) actor-networks around specific issues from the outside-in. It would mean that planners would become less the technical expert or mediator between stakeholders, but more and more social-entrepreneur constructively supporting networks of agents in their struggle for (spatial) change.

## EURODELTA

>> In this book we make use of the planners' lab, zoo or jungle called the Eurodelta. As many other regions in the world, the Eurodelta's complexity is growing fast. And spatial planners are struggling in responding to this complexity, and as mentioned before in various ways. More than in other regions, the manifold of actors and factors of Deltaregions, its organisations and institutions are traditionally known for their high level of self-organised adaptability. When

the first non-military concentrations of people emerged – in the Eurodelta somewhere around the 7<sup>th</sup> and 8<sup>th</sup> century AD – these ‘cities’ went sometimes literally and figuratively for a walk as the result of the changing courses of the rivers or the changed conditions of tide and flood (Boelens & Taverne 2012). The first attempts to contain the excessive dangers of this flooding and to improve the productivity in the area, came not so much from above, from the involved governments of the area, but were generated by self-managed ‘waterboards’ or ‘waterings’. Different from the City-State development in the southern parts of Europe, the city-development of the Occident was self-organized by the parvenus, the peddlers and the apostates of the monastic family bottom-up. When later in the 16<sup>th</sup> century the great voyages of discovery were organized and trading and/or colonial rights were established in other parts of the world, again these activities were not initiated by the state (as in Spain, Portugal and even England) but by trans-local merchant companies as the VOC and WIC. Later on the farmers organized their own milk cooperatives and the laborers their own housing cooperatives, etc. This all changed after the Second World War when the state was considered the entity to lead nations reconstruction from the ravages of the war. Consequently the national planners came into power.

Especially in the Netherlands this has evolved strongly into a highly sophisticated policy machine, which – now in retrospect – has become a monster in itself. This monster is hard to beat, while at various levels authorities and other responsible parties are trying to transform its magnitude and behaviour. This highly sophisticated policy machine has proven to be a control mechanism for spatial functions and policy sectors, which we are beginning to see as a constraint to innovation and progress. Moreover as a result actors, regions, environments etc. remained essentially exogenous to planning. In fact this is also highlighted in the recent Six Dutch Report on Dutch Spatial Planning (the so-called SVIR (Min I&M 2012)), according to, even within the government, each level retreats to their own realms, more or less exogenous from, or at least not responsible for each other.

At first glance the recent working process on the Second Report on Spatial Planning of Flanders (the so-called ‘Beleidsplan Ruimte Vlaanderen’ (BRV)) seems to be more engaged in his respect, focussing on advocacy and collaborative planning. But on closer look, it is not much different from the Dutch plan focusing on lengthy debates, process, quality of planning decisions, involvement of only a specific kind of people and an inclusive ‘public support machine’ which is connected to participatory planning mechanisms (Boelens 2011). Also here we have to acknowledge the existence of two different worlds which are wide apart: the traditional government led plan and, and a kind of planning which works in a non-linear, co-evolving, plural, actor-relational world.

Is there is one example showing a world to be non-linear it is the financial, mortgage and housing crises which started in 2008. It was a knock out for

‘control’, ‘certainty’ and governmental assurance of a fair life. Instead it showed the need for new, creative and embedded, crossover solutions, in order to facilitate or stimulate self-organizing developments and self-managed networks, allowing promising volatile innovations to emerge. With a planning that needs to be engaged in processes of coevolution, which implies involving within a process of dynamic reciprocal alignment of social evolution along the path of business innovations and civic (re)compositions, with an integrated governance evolution along the lines of institutional (re)creation and surplus application. It is consistent with relational, complexity and post-structural theories, as well with the co-evolutionary propositions of modern biology, environmental and political sciences, anthropology, evolutionary economics etc. It differs to those engagements in co-evolution, which are mainly focussing on analyses in retrospect. Co-evolutionary planning means dealing with possible, but not yet known engagements in prospect.

In this book we will set out the contours of such a proactive co-evolutionary planning. To that extend, we will argue that we have to turn back to the fundamentals of evolving (mediated) networks of actors and agents, within their (evolving) ambitions, interests and institutional environments. We will argue that planning needs to become an inherent part of that co-evolution process, in order to be efficient; that is to stimulate sustainable and resilient futures within a complex, plural and volatile society. For that purpose spatial planning needs to become endogenous and exogenous as well; to become highly relational involved, becoming conditional and to keep distance as well. We will show how this can be done and which strategies and means are available and/or need to be developed to outline that course.

## SET UP OF THIS BOOK – A READERS GUIDELINE

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>> In between this introductory chapter and the synopsis at the end the book presents two parts, one (part A) presents a generic and theoretical view on non-linearity and its consequences for planning, decision-making and governance. The second part (part B) contains various chapters presenting arguments linking relevant policy themes with non-linear kinds of planning and planning, which relates to processes of self-governance, self-regulation and self-management.

### Part A: the generic

#### Chapter 2: Peter Allen

Having been part of Prigogine’s team, Peter Allen was among the very first to explore the possibilities of non-linear reasoning and the idea of dissipative and self-organizing structures to the urban world (Allen 1997). In his chapter Allen

looks first at complex systems such as towns, cities and regions containing agency, diversity and learning through the presence and interactions of multiple agents. And he will point at the problems of planning and complexity in this specific urban context, which are not really any different from many other areas of human existence.

### **Chapter 3: Gert de Roo**

Self-organization will be thoroughly looked at. What kind of process is self-organization, if we consider it to be part of a non-linear world? And how does self-organization relate to spatial planning? Spatial Planning labels itself a science of purposeful interventions, while self-organization is a theory of spontaneous order. While both seem an impossible combination, it has recently been getting serious attention from the planning community.

### **Chapter 4: Raoul Beunen, Martijn Duineveld and Kristof van Assche**

This chapter explores an alternative theory on governance, which is desired if we accept a world, which is non-linear, is seen from a complexity theories' perspective and relates to the dynamic position of planning in society. Using the concepts of path, inter and goal dependency, the authors explore the possible pathways of planning, the possibilities and limitations for the planning system to adapt to an always-changing society.

## **Part B: the specific**

From this non-linear, dynamic, adaptive and co-evolutionary perspective, each of the following chapters will outline and underpin the future challenges on specific subjects involved, highlight the main actors of mediated factors present, and define the (adapted) institutional arrangements for successful co-evolution.

### **Chapter 5: Beitske Boonstra and Maurice Specht**

Our world is in turmoil and cities are no different, showing tremendous change. This change is not just physically but socially and institutionally as well. This 'appropriate city' begs for new planning concepts, such as organic urbanism, spontaneous cities and self-organisation in urban development and management. In this contribution associational recommendations are made to adapt those arrangements in order to stimulate co-evolution.

### **Chapter 6: Martin Dijst and Antje Gimmmler**

The implications of relational planning for mobilities are being addressed. Due to the increase in urbanization and mobilities worldwide and due to the corresponding increase of the number of relationships of human beings with unknown others, concepts of belonging become essential in making people feel connected to space and place. That would need a co-evolutionary planning of mobility with an emphasis on the relational needs of passers-by.

### **Chapter 7: Jessica de Boer and Christian Zuidema**

There is a growing awareness of social and ecological systems having to find a cooperative match in order to minimise the increasingly critical impact of human activity on the Earth system. One issue that is pressing in this respect is energy, and the possibilities of interconnected (re)uses and (re)distribution of various energy sources within a region. This cooperative match of energy related systems consequentially affects the type of governance formats and strategies suitable for establishing a sustainable energy landscape.

### **Chapter 8: Frank van Oort, Nicolas van Geelen and Helmut Thöle**

Evolutionary economic geography theory is being used in this chapter to explain why regions evolve economically as they do, stressing the concepts of related variety, specialization and diversity in the spatial-economic structure, and the self-organization and path-dependent development of local spatial-economic structures and global networks. Policy strategies are needed which stress the value of multi-level and 'smart' governance and actor-based relational planning.

### **Chapter 9: Frits Verhees en Jos Arts**

In this chapter the way governance of spatial development and projects is organized will be critically assessed from a non-linear perspective. The essence of this chapter lies in the exploration of planning theory, connecting this theory to complexity sciences and learning lessons on how to guide large spatial projects in innovative ways. These explorations show the importance of adaptive qualities in creating possibilities, positive results and successes relevant to PPPs.

### **Chapter 10: Erwin van der Krabben and Peter Ache**

Dynamics of our times create windows of opportunity for new business models of urban development. Linear financial arrangements and classic economic models have proven to be dead ends. The same goes for financial arrangements based on fixed (zoning)plans, functions and for a specific area. More open, co-evolutionary and actor-relational business models are being taken into consideration to dealing with the a-linear, complex and unpredictable changes of present day society and to stimulate innovative cross-overs in urban development.

### **Chapter 11: Jenni Partanen and Anssi Joutsiniemi**

The planning practice of today often collides with the complex urban realm, and is incapable of steering or even recognizing self-organization. Since many self-organization mechanisms may actually be indispensable to the city, we need a better understanding of them to develop appropriate planning tools. In this chapter the complex nature of self-organization in the industrial district of Nekala in the Finnish city of Tampere is studied to identify self-organization principles and how these might 'work' within the realm of spatial planning.



## **Chapter 12: Martine de Jong**

The sharing economy, social entrepreneurship, public participation, self-organization and direct democracy are recent trends, terms and concepts that lead to a new interplay of governmental, business and civic actors. Forming coalitions with these diverse actors are a key factor in meeting current interrelated challenges. De Jong introduces a plural perspective on recognizing, building and evaluating coalitions. We distinguish three arenas (established, created and spontaneous) that correspond to three types of coalitions (directive, collective and connective) with unique characteristics and related institutional roles (directing, partnering and facilitating) that give shape to different interplays. Different elements of the three types of coalitions can be combined successively or simultaneously in a blended coalitional approach. Building such an approach is an open and deliberate consideration that has to be discussed explicitly among the actors involved. The challenge of coalition planning is to be able to switch between coalitions and to bridge and mix them to reinforce the sometimes contradictory relationship between established institutions and individual aspirations. <<

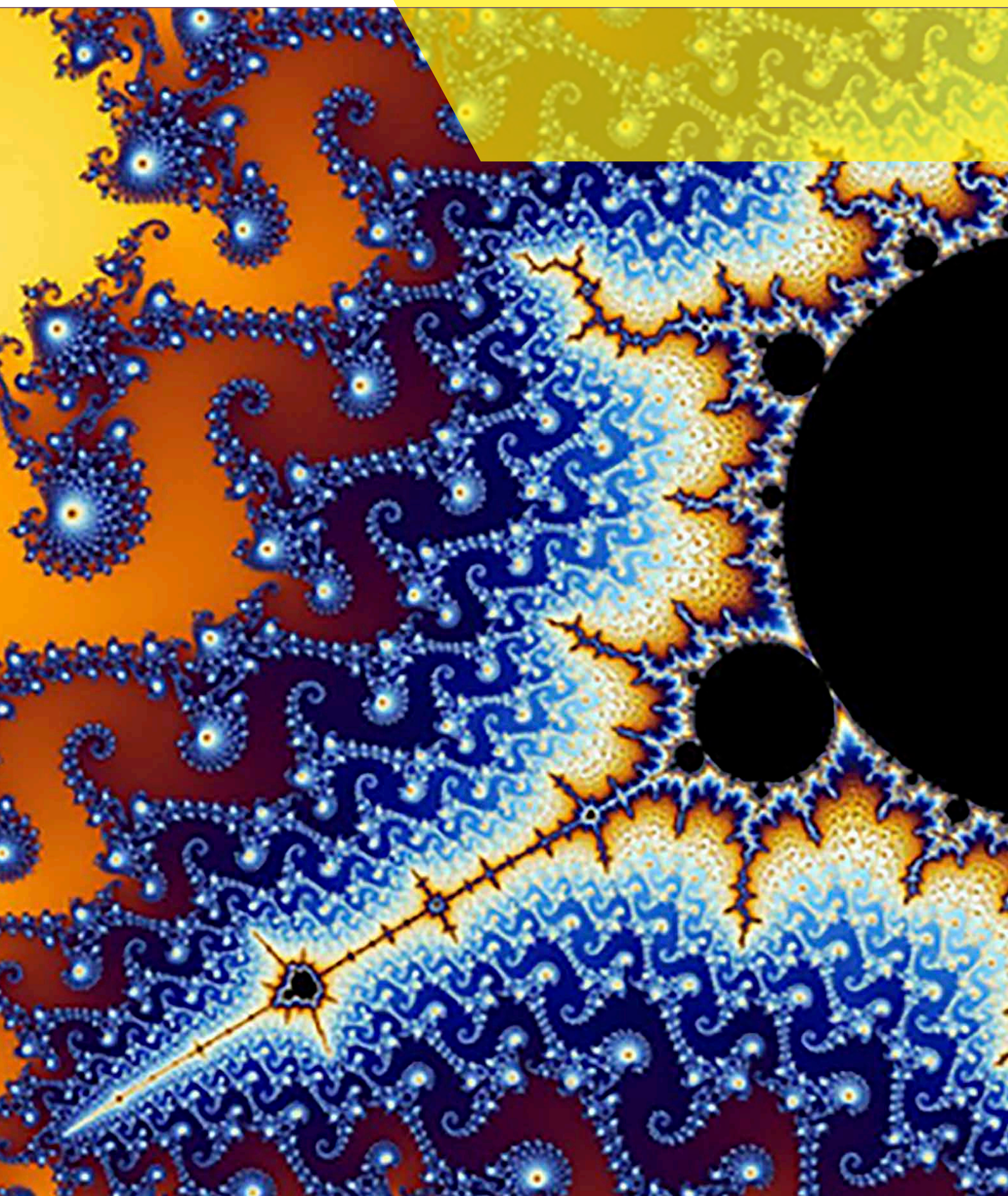


**PART A**

**THE GENERIC**









# >> The Role of Planning in Self-Organizing Urban and Regional Systems

Peter Allen

## INTRODUCTION

>> Planning comes out of a traditional perspective in which it is thought that changes to complex systems such as regions, cities and neighborhoods can and should be controlled. The legitimacy of the 'control' is conferred by the idea that a representative public body, a local, regional or national government department or agency, will impose some measure of 'public good' on the process, and consider the different probable impacts on various stakeholders. In the environment of a modern, market economy therefore, this represents a strange player, particularly as there is a competing assumption that market based decision making leads (miraculously perhaps) to the 'common good'. On what basis therefore can the market based plans of developers, trying to build housing developments and of companies seeking to invest or to move, be thwarted by a public body that claims that it is upholding a more 'real' public good? What we see is a clash of equally unsubstantiated dogmas: first, that commercially based, market driven decisions are best for society (complexity and self-organization), and second, that an institution set up by local, regional or national government, can better define what is in the 'common good' (planning). Both imply that they can anticipate the 'outcome' of any particular intervention, and in addition can give it a good/bad weighting as regards the impacts. It implies that entrepreneurs and planners know what would have happened under various different interventions including none, and are also able to evaluate these different outcomes adequately. De Roo (2000) and De Roo and Silva (2010) have raised the important issue of the clash between self-organization which is supposedly bottom up (though there are some very large, powerful agents pushing for economic developments) and rational planning, which is kind of top-down or middle-down and claims to represent the community as a whole.

Many people believe that they will be successful in what they undertake, until failure overtakes them. The whole idea of Creative Destruction (Schumpeter 1942) and the data concerning the life expectancy of firms (Ormerod 2006), tell us that all firms eventually fail, and most fail straight away. Yet nobody starts a firm believing that it will fail. This also explains why 'pay by performance' also turned out to provoke immense discord, because most people believe themselves to be above average! In other words, people not only have a poor understanding of their own capabilities, but also of the reality of complexity and how it makes 'prediction' problematic and luck a real fact of life. The whole edifice of human life is, in reality, not based on rational calculations but on evolutionary and co-evolutionary processes in which individuals and organizations appear and disappear, whatever they believe about their future, and whatever had been planned for them. Amongst this kind of turbulence, therefore, what can be the role of planning and of developing mathematical models to underpin the different policy choices and evaluations that are made?

We shall first look at modeling complex systems such as towns, cities and regions containing agency, diversity and learning through the presence and interactions of multiple agents. To what extent can such systems be modeled usefully? Can models tell us with any degree of certainty what will happen in the future under different possible scenarios of policy, intervention or planning? Can they tell us at least what cannot happen? Then we shall look at how any such models should be used and whether it is better to have them than not to have them. Finally we shall show that the problems of planning and complexity in this specific urban context, is not really any different from many other areas of human existence. Fundamentally, we spend our lives revising our interpretive frameworks and the beliefs that inhabit them. These are developed idiosyncratically as a result of our own genetic and experiential particularities. We try to develop a model that fits the facts, as we currently know them, and when these are seen to be inadequate, we must modify our beliefs and the structure of our interpretive framework. But there is no scientific or unique way to modify our beliefs when they have failed, and so we are condemned to carry on throughout our lifetimes trying to 'make sense' of what is going on, what it means and what might happen. This is an unending process, although for many of us it ends with death, or indeed some time before death, sometimes at a relatively young age. Even though the development and 'use' of interpretive frameworks is always going to be imperfect, it is nevertheless better to have one than not to have one. Acting without any model to 'test' is simply 'trial and error' without any learning and so it falls below the level of folklore and simple pragmatism.

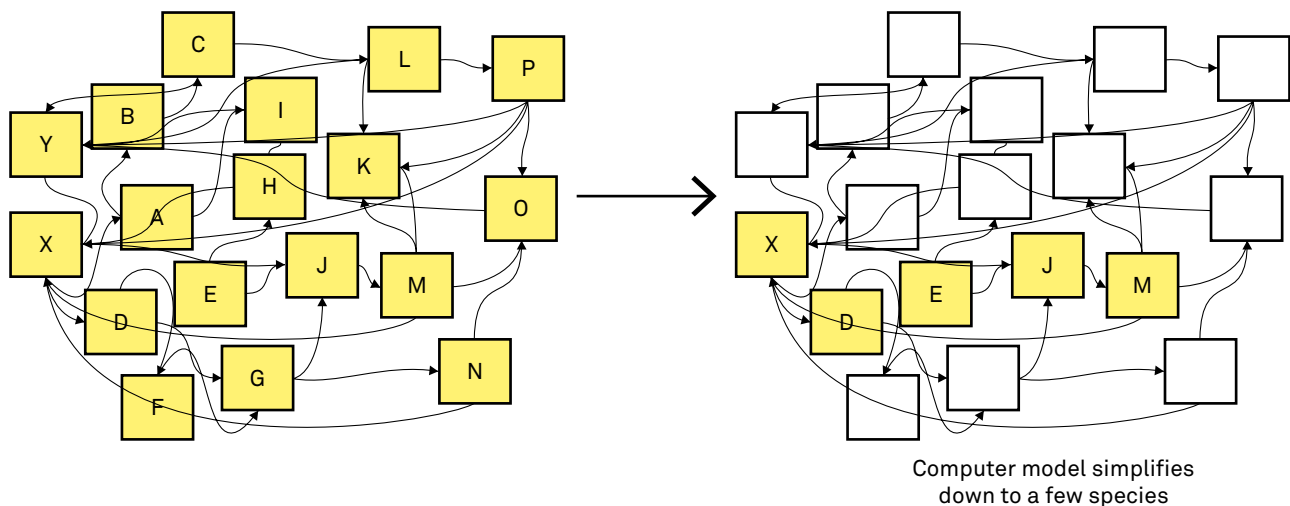
## COMPLEXITY

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>> In order to make effective designs, investments and policy decisions in cities, we need to understand the multiple decisions and actions made by the multiplicity of agents and entities involved. This really means that we need to understand the options that they perceive, and the trade-offs that their value systems cause them to make, and through this to know how they will react to some policy, action or investment that is contemplated. Only then would we have a reasonable basis on which to identify emerging problems and to evaluate different possible policy or decision responses.

In fact, the behavior of complex systems offers an appropriate set of concepts with which to begin a new reflection on human systems. In this new view, non-equilibrium phenomena are much more important, and offer a new understanding of the natural emergence of structure and organization in systems with many interacting individual elements. (Nicolis and Prigogine 1977, Haken 1977, Allen 1983 1990 1997, Anderson, Arrow and Pines 1988, Kauffman 1993, Prigogine 1997, Holland 1998, Wolfram 2002, Albert and Barabasi 2002, Mandelbrot 1997). Here we shall present models of evolutionary and regional





**FIGURE 2.1**  
A calibrated ecosystem  
represented by the population  
dynamics of its constituent  
species collapses when run  
forward in time.

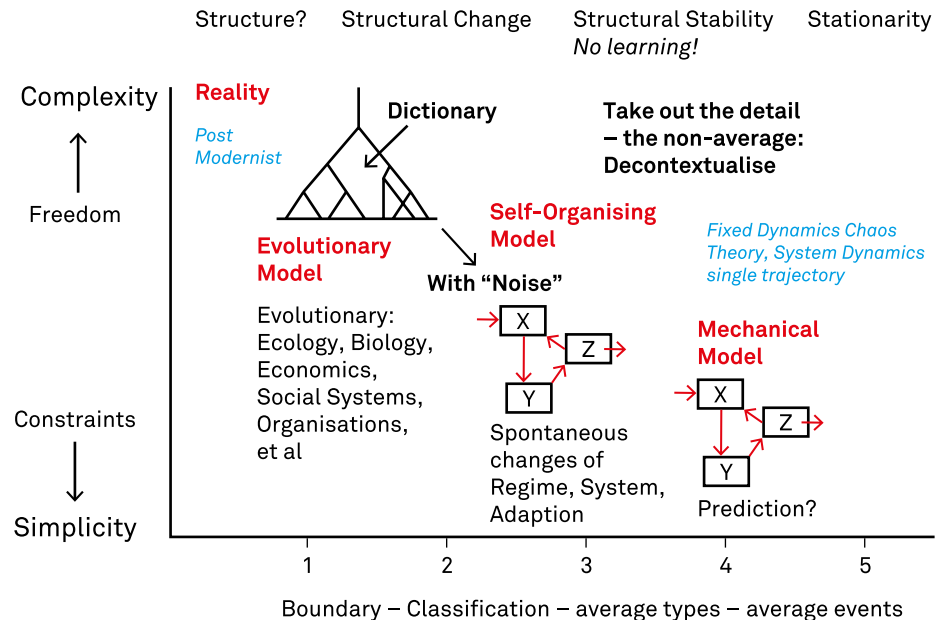
systems that show how the dialogue between the individual and collective levels that generate successive spatial structures, with characteristic patterns and flows. These represent a co-evolutionary behavior and organization beyond the “mechanical” where, the locations and behaviors of the actors are mutually inter-dependent, the system has many possible responses to perturbations, and where the urban system can change, adapt and maintain rich, diverse and varied strategies. This view of sub-optimal behaviors, imperfect information, mistaken inferences and the power of creativity is contrasted with the traditional mechanical representations of human systems. The models discussed here offer a new, quantitative basis for policy exploration and analysis, allowing us to take into account the longer-term implications for the system as a whole.

Let us consider the most basic problem of modeling a natural ecosystem. We can establish the different species that exist there, and then find out how many of each population there are. We can also, by sampling, find out which population eats which other population and calibrate the multiple plant/herbivore and predator/prey interactions. Now, once this is established, we can put the whole system of equations on a computer, and run it forward. What happens is shown in figure 2.1.

The model collapses down to a single food chain! This is an astonishing result. It means that although the model was calibrated on what was happening at time  $t = 0$  it collapsed down to a few species while the real ecosystem stayed complex, and indeed continued to adapt and change with its real environment. And this shows us that the mechanical representation of reality differs critically from that reality. What is missing? This can be discovered if we examine carefully the assumptions that we made in formulating our population dynamics. What happened is that the loops interactions of a real ecosystem form parallel food chains, with cross connections and complications of course, but essentially with

**FIGURE 2.2**

This shows the result of successive simplifying assumptions that take us from a complex evolving system to its mechanical representation.



each level feeding on the lower one, some of these dying and others being eaten by the level above. When we run the population dynamics with the fixed birth, death capture and escape rates that we have found on average in the real system (in analogy with chemical reaction rates), then the food chain with the highest performance simply eliminates all the others. In other words, selection between metabolic chains operates and this selects for the highest performing chain. However, reality does not. Therefore we need to understand what is missing in the model compared to the original real system.

The key answer is that what is missing is the internal diversity of the populations. In chemistry, one molecule is very like another, and the only difference is their spatial location. Dissipative structures involving non-linear chemical reactions can create spatio-temporal patterns because of this (Nicolis and Prigogine 1977). But populations of organisms differ in an infinite number of ways. Firstly in location, but also in age, size, strength, speed, colour etc. and so this means that whenever a population, X, is being decreased by the action of some particular predator or environmental change, then the individuals that are most vulnerable will be the ones that “go” first. Because of this the parameter representing the average death rate will actually change its value as the distribution within the population X increases the average “resistance”. In other words, the parameters characterizing the populations are changing as the system runs! The whole system of populations has built in through the internal diversities of its populations, a multiple set of self-regulatory processes that will automatically strengthen the weak, and weaken the strong. As it ‘runs’ the dynamics will create patterns in the different dimensions of diversity that the populations inhabit. But neither we, nor the populations concerned, need to know what these dimensions are. It just happens as a result of evolutionary dynamics.

**FIGURE 2.3**

The model is a consequence of the assumption made.

Number	Assumption Made	Resulting Model
1	Boundary assumed	Some local sense-making possible – no structure supposed
2	Classification assumed	Open-ended Evolutionary models – structural change occurs
3	Average Types	Probabilistic, Non-Linear Equations – assumed structurally stable
4	Average events	Deterministic, Mechanical Equations – assumed structurally stable

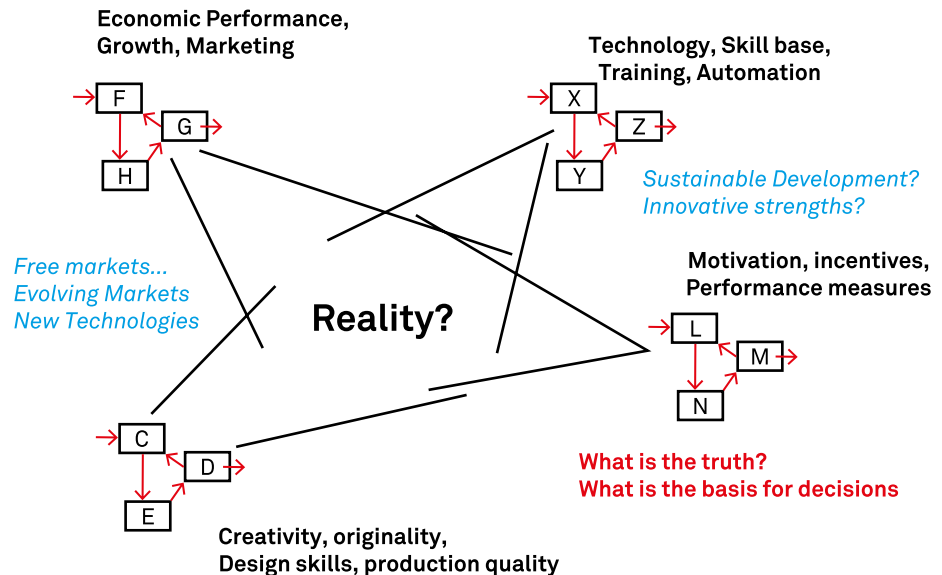
In this case it becomes key to understand the sequence of assumptions that take us from reality to a mechanical representation of that reality. This leads us to the general view that is shown in figure 2.2. This sets out the kind of models that result from a particular set of assumptions.

This succession of models arises from making successive, simplifying assumptions, and therefore models on the right are increasingly easy to understand and picture, but increasingly far from reality. They also are shorn of their capacity to evolve – their real underlying exploratory, error-making processes. The operation of a mechanical system may be easy to understand but that simplicity has assumed away the more complex sources of its ability to adapt and change. They become more like “descriptions” of the system at a particular moment, but do not contain the magic ingredient of micro-diversity that will really allow the system to undergo structural change and create a new, qualitatively different system, with some new variables and some emergent performance. The ability to adapt and change is still present in the “evolutionary” model that only makes assumptions 1 and 2, but not those of average type and average behaviors. This therefore tells us that the evolutionary capacity is generated by the behaviors that are averaged by assumptions 3 and 4 – average types and average events – and therefore that organizations or individuals that can adapt and transform themselves, do so as a result of the generation of micro-diversity and the interactions with micro-contextualities. This tells us the difference between a reality that is “becoming” and our simplified understanding of this that is merely “being” (Prigogine 1980).

In reality, complex system thinking offers us a new, integrative paradigm, in which we retain the fact of multiple subjectivities, and of differing perceptions and views, and indeed see this as part of the complexity, and a source of creative interaction and of innovation and change. The underlying paradox is that knowledge of any particular discipline will necessarily imply “a lack of knowledge” of other aspects. But all the different disciplines and domains of “knowledge” will interact through reality – and so actions based

**FIGURE 2.4**

Different people see the same system in different ways. Each can however be rational and consistent, whilst advocating quite different actions or policies.



on any particular domain of knowledge, although seemingly rational and consistent, will necessarily be inadequate. As figure 2.4 illustrates it is perfectly possible for different agents within a system with their own rational seeming understanding of things, to urge completely opposite actions and decisions. This points to the issue that there is not a single, objective truth about a human system, but instead multiple perspectives and interests.

Management and policy exploration require an integrated view and complexity science, encompassing evolutionary processes in general, provide it. It applies to the social, cultural, economic, technological, psychological and philosophical aspects of our realities. Often, we restrict our studies to only the "economic" aspects of a situation, with accompanying numbers, but we should not forget that we may be looking at very "lagged" indicators of other phenomena involving people, emotions, relationships, and intuitions – to mention but a few. We may need to be careful in thinking that our views will be useful if they are based on observations and theories that refer only to a small sub-space of reality – the economic zone. The underlying causes and explanations may involve other factors entirely, and the economic "effects" of these may be only delayed, ripples or possibly tidal waves. What matters over time is the expansion of any system into new dimensions and conceptual spaces, as a result of successive instabilities involving dimensions additional to those the current "system" appears to occupy.

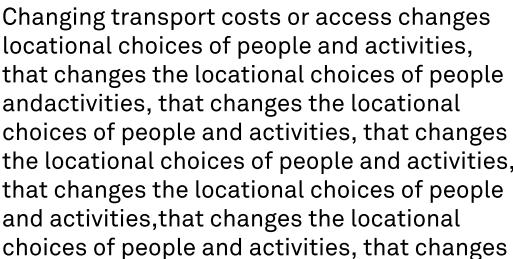
This idea of evolution as a question of "invadability", with respect to what was not yet in the system, was the subject of a very early paper by the author (Allen 1976). Essentially then, instead of systems 'just running', each system is only temporary, and will be changed qualitatively at moments of instability that result from successive "invasions" – from within or without the system. We see that history is written not by some process of "rational improvement" in its

internal structure but more fundamentally by its dialogue with elements that are not yet in the system – successive ‘experiments’ that either are rejected by the system, or which “take off” and modify the system irreversibly. Planning attempts to impose rational improvements but without the knowledge of how the system may evolve! This is the burden for ‘systems scientists’ who focus on modeling what is there, only to find that they need to take account of what was not there!

The realm of “complex systems” models that we wish to develop aim to make only the first two assumptions of figure 2.2 and to study cities and regions as evolving, self-transforming systems in which behavior, decisions and the value systems underlying these all evolve over time. This leads to a view of a city or region as a complex evolution of spatially distributed learning ‘agents’ reflecting local stresses, opportunities and exploratory responses such that people not only change what they do, but also their knowledge of what they could do, and what they want to do.

Qualitative, structural changes occur both in the macroscopic forms of the collective structure, and also in the microscopic structures within individuals’ brains that govern their trade-offs and decision making, which in turn govern the future structural evolution of the collective system and of the individuals that inhabit it. In reality then a city is a complex system, as is a neighborhood, a household and an individual. These represent nested levels of description, and we can develop mathematical models that can explore different possible evolutionary pathways and possible futures under the assumptions of different possible interventions. This work started in 1976 when the US Department of Transportation commissioned our early research on developing dynamic models linking transport infrastructure and decisions to urban morphology through the connected dynamics of location decisions and changing transportation. The essence of these models is shown in figure 2.5 in which the locational patterns of people, of jobs, of transport and of infrastructure are coupled together, so that their combined evolution can be explored under different interventions and plans. The key idea is that changing transport costs or access change the locational choices of people and activities, that in turn change the demand for transport and access, so that the two feed back on each other. These strong feedback relations mean that the system is unstable, and can exhibit different possible trajectories into the future. In comparing the probable consequences of different decisions the model enables us to choose among possible futures.

An important point to underline concerns the reasons for which we travel at all. If we ask why people travel at all, we find that it is because of the spatial distribution of diverse activities and opportunities:



- Dispersed distribution of affordable/desirable housing
- Concentrated distributions of employment
- Concentrated distributions of retail opportunities
- Dispersed distributions of leisure and cultural facilities

In view of this complexity, and the intertwined effects of transportation and spatial structure, it seems clear that there is a problem for the evaluation of transportation policies and plans. How can there be an overall assessment or

evaluation of any plan for new roads or for public transport systems unless these complex effects are assessed? The answer is that, in fact, they are not. Decisions concerning urban highways, new tram and metro systems are really decided on the basis of politics and fashion.

### DYNAMIC, SPATIAL URBAN MODELS

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>> Since the 1970s, work has been going on that attempted to develop computer models that would take into account the complex interactions of linked responses that lead to a co-evolution of urban structure (patterns of retail, commercial and manufacturing employment, and different qualities of residence) with transportation infrastructure. These models are based on the following characteristics:

- Different types of actor at each zone, with characteristic needs to be fulfilled;
- These characteristic needs are stable, but the behavior of actors depends on the changing circumstances;
- The spatial distributions of the different types of job and different kinds of people affect each other as the potential for housing demands, commercial activities and for travel affect and are affected by transportation and land-use.

The development of these models has been described in Allen 1997. After an initial phase that developed models suitable for some US and European cities, an example based on Brussels was developed to demonstrate the potential utility of the approach. The model represents the interacting behaviors of the actors in the urban system, as they each modify their behavior as a function of the changing opportunities and pressures, as they each pursue their own goals, for the location and re-location of employment according to the functional requirements, and as private citizens, as a function of their means and the opportunities. The spatial dynamics can therefore generate and capture the complex effects of housing price dynamics, and also the complex effects of planning regulations on commercial and industrial employment, as well as the effects of changes in the transportation systems.

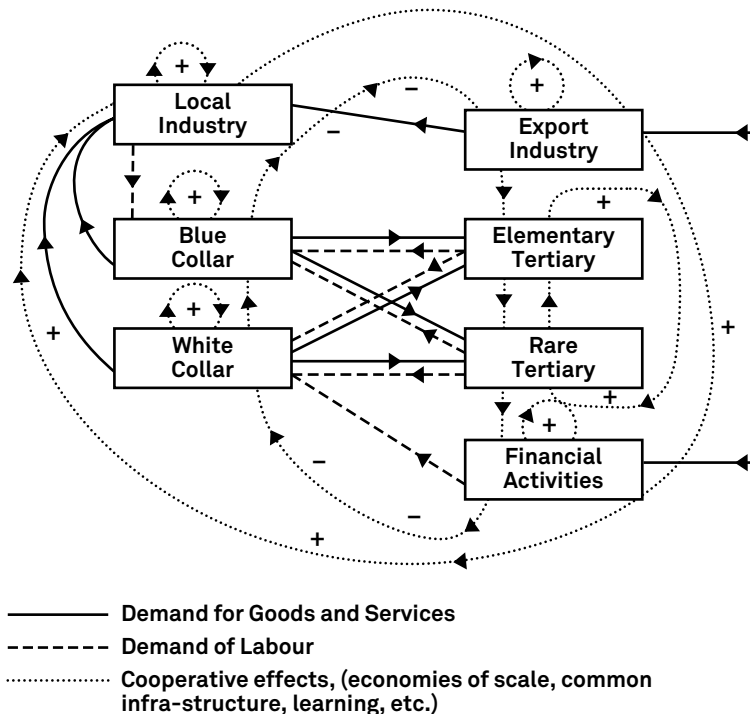
In figure 2.6 we see the interaction diagram of the different types of agent considered adequate to represent the spatial evolution of a city like Brussels in the 1980s. It has different possible interaction mechanisms between them, which express the need for flows of goods services and people between different locations, and also the pressure of spatial concentration affecting land prices and rents.

The mechanisms above, when run under a scenario of overall growth, spontaneously generate self-consistent urban spatial structure for the 7 types of actor, as well as the corresponding flows of goods, services and people. A typical evolution is shown in figure 2.7.



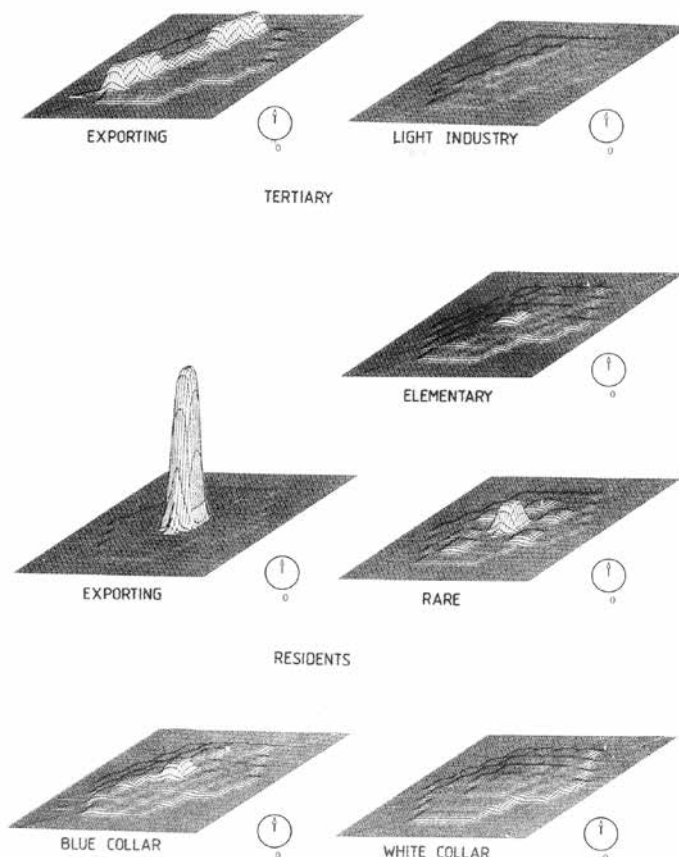
**FIGURE 2.6**

The interaction diagram  
spatially distributed multiple  
agents of different kinds.



**FIGURE 2.7**

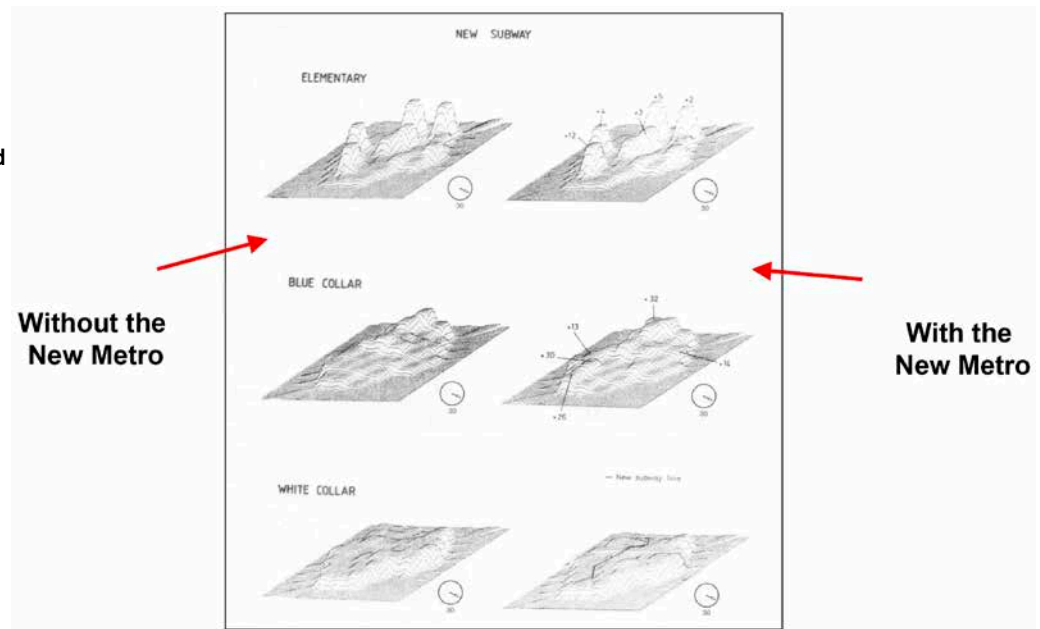
Emergence of complementary  
spatial distributions of the  
seven variables.





**FIGURE 2.8**

The distributions of residents and of tertiary activity are shown for simulations with and without a new Metro system.



Such a model can therefore be used to explore the effect on the spatial structure of possible modifications of the transportation system, and of course the resulting changes in the pattern of demand for transportation. This could correspond to plans for new roads, tramways or Metro system. By looking at the changes in structure that follow some intervention, our model can explore the impacts over time of a given action, as actors respond to the new situation, and their changed behavior affects other actors in turn, creating a complex spatial multiplier (Figure 2.6).

This allows us to examine the complex effects of the cascading interactions under different possible plans for the Metro: possible routes, locations of stations, train sizes and frequencies. While not pretending that each outcome is a real prediction that is accurate, what matters are the relative differences between simulation outcomes, since these will show, figure 2.8, the “relative effects” of different routes, of more or less trains etc. Similarly, the model can be used over the longer term to examine some strategic issues such as the effect on decentralization – centralization. This surely is one of the major questions that affect any city – will this action influence the existing trends and patterns of migration of jobs and people into the periphery? Clearly, the action of building Metro systems in one that tends to “allow” people to travel to the central part of the city with some ease. By the additional use of “park and ride” car parks at edge of town metro systems it may even encourage the further out-migration of residents from the city, but anchor employment at its center. Any evaluation of the plans for a Metro System needs to include not only the projected costs of the system, but also the projected effects on the city. These projected effects cannot be calculated simply from the expected “traffic” that switches from roads to the Metro, but also needs to encompass the spatial changes brought about to the

residential, commercial and employment sectors. In particular, it is important to have some idea of the strategic impacts of a transportation scheme, and whether it will tend to accelerate or reverse some basic trends that are running in the system at present.

Despite being developed over two decades ago, models of the kind described above are still not used by decision makers such as regional, urban or local authorities. It seems clear then that such decisions are left to the intuitive judgment of such authorities, acting under advice and pressure of competing lobbies and groups with particular interests. This cannot be a good way to make decisions. In particular, it seems evident that some method is required for estimating the strategic impacts on the growth patterns of the city, effects on house prices, on residential and commercial development, and in turn on future traffic patterns, energy consumption, pollution etc.

The framework discussed briefly here is a candidate for this, and therefore deserves a renewal of interest in its development and adoption.

## REGIONAL MODELS

>> In the end the interacting spatial distributions of different types of agent captured in the Brussels model was really a very general format capable of describing, with suitable calibration, the interactions of different types of agent over time. The models developed to describe Brussels were extended to describe the evolution of regions and of nations. Models were developed of Belgium, Senegal, the Argolid (Alexandris et al 1998, Allen et al 1999), the Marina Baixa, the Rhone Valley and the West Midlands (Cambridge Econometrics 2009).

The Asian Development Bank has also commissioned work designed to explore the strategic spatial consequences of different possible transport investment plans in West Bengal (Brunner and Allen 2005). This enabled assessment of questions like the spatial distribution of the impacts on poverty. This is something that has become a necessary pre-condition for many projects to be sanctioned by international organizations, and in fact there appears to be no method of calculating such impacts other than the one described above. The ideas behind the spatial models described above were adapted to consider how the gains resulting from improved transport infrastructure would give rise to spatial multipliers generating jobs in the different economic sectors. International transport consultants performed a large survey to provide information on the flows of goods on the West Bengal road network. The model could use the expected reductions in the costs of particular transport projects to estimate the savings that would result. These would in turn affect sales, leading to increased demand, increased production and therefore to more jobs. The spatial multipliers will therefore reflect the pattern of enhanced demand Figure 2.9, and how this is transmitted to change the patterns of transport and of supply, changing employment in the different zones as in Figure 2.10.

FIGURE 2.9

The spatial interactions used in the calculation of economic implications of reduced transportation costs.

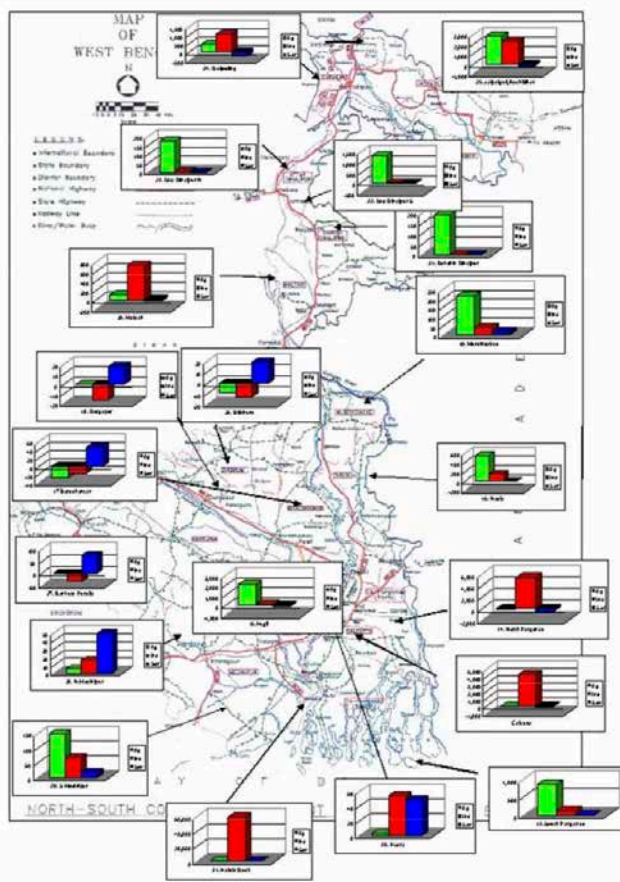
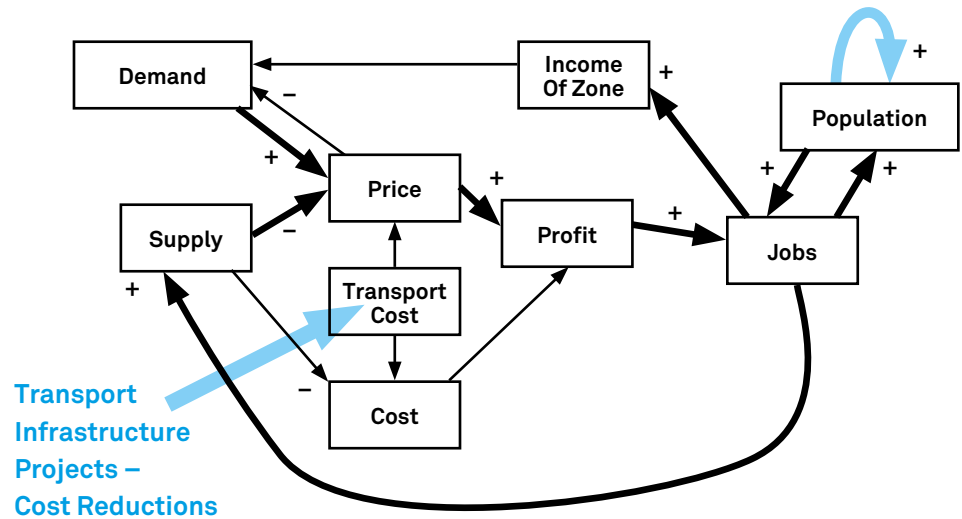


FIGURE 2.10 A

The pattern of jobs created by the transport infrastructure projects.

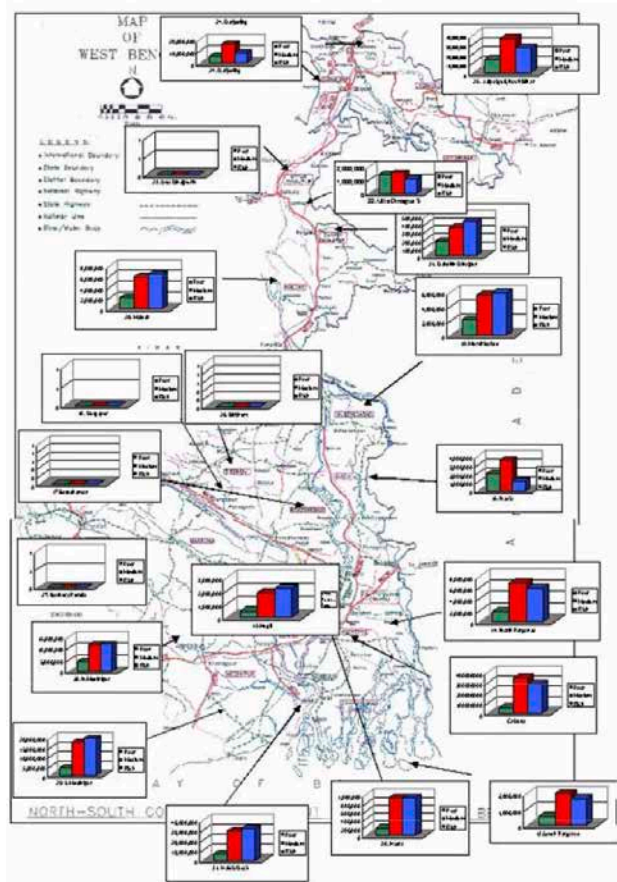


FIGURE 2.10 B

The pattern of savings and increased income made by the different socio-economic groups across West Bengal.

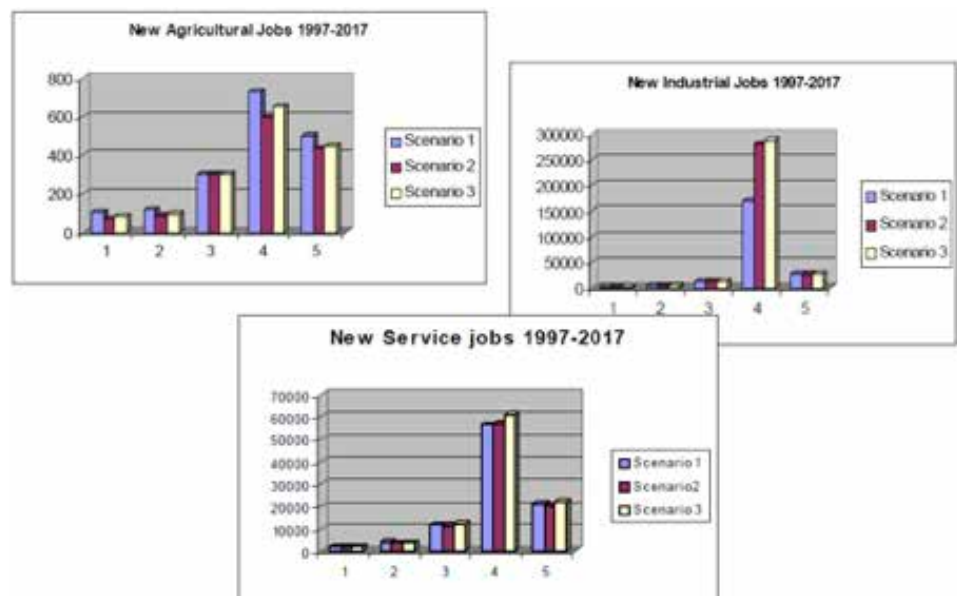
This in turn allowed the calculation of the “impact on poverty” – where and how much extra employment and wealth could be created.

This framework was also used to examine the possible economic and demographic evolution of Nepal in a study funded by the Asian Development Bank. Here the question was to try to capture the impact of an economic investment and to compare three scenarios: doing nothing, investing \$50million or investing \$30million and improving the transport infrastructure with the other \$20million. The statistics for Nepal consider the five different regions that make it up (figure 2.11), and so our spatial model considered the interaction and development of demography and economic activity across the five regions.

**FIGURE 2.11**  
The five regions that constitute Nepal.



**FIGURE 2.12**  
The output for the growth in jobs in the different sectors for the five regions of Nepal.



The model was able to show (Figure 2.12) that transport infrastructure projects could indeed offer a slightly greater return than simply investing the money in the region. Another important point that the model showed was that development was critically dependent on what happened to profits. If they were sent overseas then the economy would decline seriously and could not generate the actual growth observed in the past. If the profits were merely 'spent' in Nepal, then despite the idea so popular with Thatcherism that it would result in growth through 'trickle down', this was not the case. The growth was weak and in any case did not correspond to the actual past. It was necessary to invest profits into improving productivity and diversity of production that both led to successful growth and also coincided with the figures of the preceding decade. In this way, the spatial economic and demographic framework of interacting equations can be used both for practical planning and decision making, and also to look at overarching political and economic beliefs.

### LEARNING BY MODELING

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>> In the short term our simulations of, for example, Brussels, can show how the same equations could potentially give rise to qualitatively different spatial configurations of the 'same' variables. So, our city could potentially evolve into different possible spatial morphologies: multi-CBD; separate business and industrial poles; a diffuse sprawled city; a city with a pie-slice structure etc. Depending on the degree of disruption imposed on the city different forms could potentially be achieved. Even without specific macroscopic interventions the models themselves show us that ordinary 'noise', or fluctuations of densities of the variables, can give rise to different trajectories into the future (Allen 1997).

Each trajectory is an ensemble pathway of the seven interacting variables, and cannot be considered independently. Any particular outcome of each variable can only be attained by all seven of them interacting. The 'noise' present in the model will be sufficient to send the model off along different paths. Another way of looking at this is to say that the interacting dynamic system is only marginally stable and therefore there are different trajectories going into the future depending purely on micro differences. What is important therefore for planning and for considering the future is that we need to run the model under realistic levels of micro-disturbance in order to see how stable any planned intervention will be, and to try to ascertain the different possible qualitative regimes that could arise.

In discussions of Complexity it is sometimes misleadingly stated that prediction is impossible and that we should simply let the system self-organize – as that will necessarily be 'good'. First, it is possible to predict to some degree and for some timescales. Second, it is important to know what qualitative structures



could emerge and discuss the merits and demerits of these, since these are the choices that are open to the system at present. These different structures are actually different possible 'attractors' of the dynamics and so correspond to qualitatively different stable structures that could exist involving the seven interacting variables and their spatial distributions. These are the possible targets for planning interventions and other outcomes will not really occur. Hoping for the best will not beat working out the different possible structures that are possible, which one is preferred, and trying to get to it. Without models that can explore the possible future structures and morphologies of the system, planning and interventions can have no predictable outcomes.

On an even longer time-scale, complexity thinking and evolution tell us that although the spatial structures of the seven variables matter in the short term, the actual variables relevant to the system will evolve over time and the model will not only be 'wrong' in the long term, but will be written in terms that are not relevant to the later situation. This is indeed what has happened to the 'Brussels' model, which was relevant in the 1980s but not today. Today the distinction between blue and white-collar workers has gone and quite different socio-economic groups are used in the statistics. Furthermore, the point about these variables for the model was that they were supposed to 'label' different behaviors. Blue-collar workers were supposed to be paid less, travel less far to work and have a different demand function from white-collar workers. Similarly, there has been an overall change in the number of people employed in industry and manufacturing, and their socio-economic grouping has become much less clear. Retail has undergone a change from high streets to supermarkets and there has been a vast increase in 'services' – covering a wide variety of activities. The variables themselves have been overtaken by events, and the questions that a planner might wish to address have changed completely from those of the early 1980s.

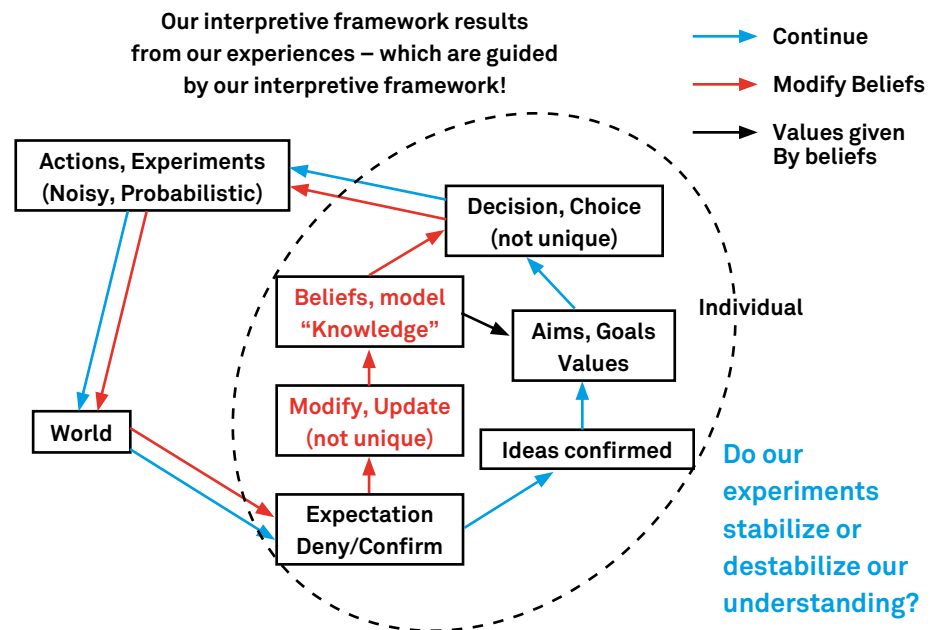
This does not mean that modeling for planning and intervention purposes is pointless. Instead, it means that without an 'interpretive framework' or 'model' (Figure 2.13) there is nothing with which to compare an on-going evolution to its on-going 'expected evolution'. We will not know that the real world is evolving qualitatively and deviating from our representation of it, unless we can compare the on-going situation with that 'predicted' by the model. Indeed, it may well turn out that the most useful information that comes out of a model is that it is failing to fit reality and its predictions need to be reassessed.

Although this seems rather defeatist for a modeler, we should nevertheless recall the general picture of how learning occurs.

If we see the dotted line as separating us (or an organization) from the outside world then, apart from some parts of physics where repeated experiments are really possible, we only have beliefs about how the world we inhabits works.

**FIGURE 2.13**

Our interpretive frameworks are really permanent 'works in progress', as our experiences do or do not confirm our beliefs.



These beliefs, which are our interpretive framework on which we base our decisions and choices, shape our actions. These are really experiments that we carry out and which 'test' whether our beliefs are sufficiently useful. When our experiences seem to agree with our beliefs we reinforce our interpretive framework, whereas when experience does not meet our expectations we are forced to modify our previous beliefs. However, there is in fact no scientific or correct way of modifying beliefs as a result of some inadequacy. Each of us will tend to do that based on our pre-existing interpretive framework and initially, following a financial crisis for example, there will be little agreement about what was wrong, what might happen and how the failed model should be improved. Over time, though, some sort of social consensus will form around one school or another, or perhaps even several. This is because our beliefs about what is happening, why it is happening and whether or not it needs intervention of some kind are really all culturally and socially constructed views that arise out of our collective experiences and reading of history. If figure 2.13 represents an organization rather than an individual then it will help if different perspectives are brought together to 'construct' its actual beliefs and values – and in this way they can be made explicit rather than hidden. Clearly, bring stakeholders into the development and monitoring of the interpretive framework must be a valuable exercise. In other words our beliefs, models and values are just part of the ongoing complex evolutionary processes of the world, and they are not so much 'true' as just part of the system. This basically offers a fundamentally 'pragmatic' view of our inventions and planning within the highly complex systems that we inhabit. We may learn which actions 'work' and which don't by trying things out, but of course in a changing world

we must always be ready for rules that previously worked to fail at some later date. In the end, models such as ours are used in order to try to accumulate knowledge about the system, and to guide our experiments as a function of our beliefs. They are also experiments in representation and the interpretation of the multiple facts and issues that surround us, and will serve as a focus for discussion and learning as things evolve.

### THE LESSONS OF COMPLEXITY

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>> The key issue that arises is the role of planning within urban and regional systems that are complex systems capable of self-organization. If plans are made that run counter to the 'natural decisions of the urban agents' then such plans have little chance of being successful. However, if planning is abandoned as the self-organizing processes of the system are left to create the future, then it assumes that self-organization always leads to a good outcome. But this is not at all the case. What complexity tells us is that there are probably many possible futures, and they will differ qualitatively in their characteristics. This leaves us with the key idea that complex systems models of urban and regional systems can be used to explore the different possible futures, so that plans can be made to help guide the system along a preferred future trajectory. New ideas, behaviors and possibilities will continually probe the stability of any existing structure (dynamical system) and may lead to different dynamic attractors and configurations of that particular system. However, an evolutionary step will correspond to instability when some new variable, behavior or technology that was initially only small is amplified and becomes a significant part of the system. So we distinguish between a dynamical system, which may have several different possible configurations and structures concerning the same set of variables, and a longer-term evolutionary complexity where new variables and dynamical systems can emerge over time.

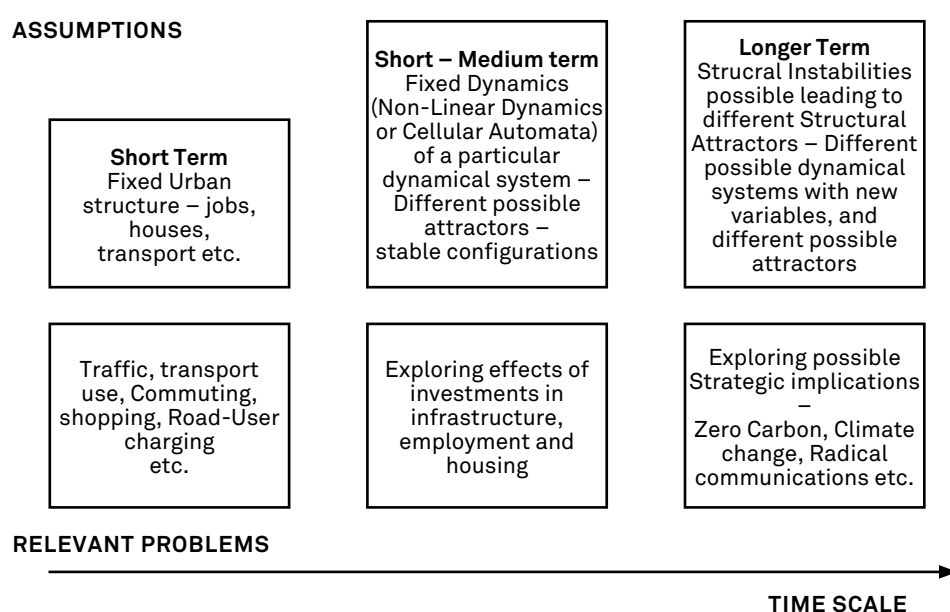
A system of co-evolving agents with underlying micro-diversity and idiosyncrasy, will automatically lead to the emergence of successive structural attractors – particular dynamical systems. In other words, complexity tells us that urban change does not correspond simply to the 'running' of a particular dynamical system (set of variables and interactions) but to successive dynamical systems – separated by periods or moments of instability. And this tells us about the limits of any particular model. For example, our initial model of Brussels with industrial, manufacturing, tertiary and quaternary jobs was very relevant when it was developed in the early 1980s. It offered an excellent basis for planning and decision-making concerning for example, where to invest in new commercial or business properties or housing and for decisions concerning transportation and infrastructure investment. However, looking back later we see that the agents and variables used in the model gradually became incorrect. So the division between blue and white-collar workers ceased to be



a good classification of types of employee, and jobs described as heavy or light industry, ubiquitous or rare tertiary simply ceased to be correct classifications of employment as new activities and technologies emerged. So although the initial model was a good basis for planning, over time it became less and less correct as a description, but, of course, the plans and actions taken as a result of the model persisted into the future forever. So we see that models should be updated and revised over time to take into account the evolution that is occurring. And actions and plans made on the basis of a model (or any other belief) should not concern too much particular long term predictions, since the real future in the longer term cannot be imagined or anticipated with any certainty. Instead we should accept the reality of qualitative change in the future and leave our options as open as possible. This is the meta strategy for sustainability – the maintenance of future options wherever possible. Clearly the use of non-renewable resources necessarily runs counter to these ideas.

Structures that will emerge from messy, shifting networks of people, things and ideas are complex systems of interdependent behaviors whose attributes are on the whole synergetic. Most cities will therefore bring together the skills, knowledge and training elements that favor their own success in the environment, usually performing some specialized role within the larger context of an urban hierarchy. This means that not all possible skills or economic functions are present but rather that success will be an emergent phenomenon within a context that is itself evolving an emergent structure at the level above. Synergetic interactions provide better performance than single, purely homogeneous behaviors, but are less diverse than if all “possible” behaviors interacted, in which of course there would be some conflicts of land-use and requirements.

**FIGURE 2.14**  
The different types of model  
that can be used for different  
time scales.



So, cities will tend to become emergent bundles of activities. The presence of these bundles within the city provides it with the capacity to pull resources in from the environment in a co-evolutionary process within the larger structure. This idea corresponds, remarkably, with the emergence of hyper cycles in the work of Eigen and Schuster (1979) but recognizes the importance of emergent collective attributes and dimensions. The structural attractor (or complex system) that emerges is the result of the particular history of search and discovery that has occurred, and is characteristic of the particular patterns of positive and negative interaction of the components that comprise it. In other words, a structural attractor is the emergence of a set of interacting factors that have mutually supportive, complementary attributes.

The conclusion of this contribution is that the new ideas emerging from complex systems thinking offer us a new basis for understanding and living in the real world. Since the possibility of structural change, learning and innovation are considered, these kind of models provide a new basis for policy exploration, particularly with respect to issues of “sustainable” development. In these the “bio-physical” part of the system (the hydrology, soils, vegetation, ecology, physical infrastructure etc.) is linked dynamically to the “human” part of the system that is driving the exploitation of resources, both natural and human.

These developments underline the fact that these models should not be thought of as only of “academic” interest. Nor are they just biological or chemical metaphors. The fundamental points that have been made concern the scientific basis of understanding. Understanding is achieved in a trade-off between simplicity and realism. The whole question is whether or not a simple enough description can be found which is still sufficiently realistic to be useful. In the past, the desire for tractability has led to the use of very strong assumptions such as that of “equilibrium”, which is necessary prerequisite for a normal “cost/benefit” analysis of a decision. It is our contention here, that such methods are incorrect – although possibly better than nothing. The new methods presented here are still not used operationally, which means that any strategic aims that are involved in the decision to invest in new transportation systems are really based on the personal intuition of the people involved. Of course, these can be correct, but in general it would be good to be able to provide better information about the probable consequences of such schemes.

The history of a successful society within a region is largely a tale of increasing cooperation and complementarity, not competition. An economy is a “complex” of different activities that to some extent “fit together” and need each other. Competition for customers, space, or for natural resources is only one aspect of reality. Others are of familiar suppliers and markets, local skill development and

specialization, coevolution of activities to each other, networks of information flows and solidarities, that lead to a collective generation and shaping of exchanges and discourse within the system. Evolution is not about a single type of behavior “winning”, through its superior performance, but rather by increasing diversity and complexity. The models we propose are therefore ones that can help us deal with the overall, integrated effects of the coupled decisions of multiple actors, and allowing us better insight into the consequences of possible policies and actions. Planning should be made with knowledge of possible futures, and options should be maintained wherever possible. It is better to make many small experiments than adopt the ‘monolithic’ option. We have entered a post-modern era, which is about learning, change and adaptation and we need to bring knowledge of complexity science to planners. <<







# >> Self-organization and Spatial Planning

## Foundations, challenges, constraints and consequences

Gert de Roo<sup>1</sup>

<sup>1</sup> The author wants to thank those people who have invested time and energy in commenting the draft versions of this contribution. In particular thanks to Jean Hillier, Ward Rauws and Zhang Shuhai.

### DOES SELF-ORGANIZATION MATTER TO PLANNING?

>> Spatial Planning and self-organization: the combination of these two themes is perhaps somewhat unexpected, one being the collective manifestation of 'intentional' action, the other representing 'spontaneous' phenomena. Spatial Planning labels itself a science of purposeful interventions, while self-organization is a theory of spontaneous order. Nevertheless, this combination has recently been getting serious attention from the planning community. There are a few empirical reasons for this interest, such as the spontaneous but devastating global crisis, affecting the housing, mortgage and financial markets. Since 2008, the crisis has challenged planners to assess traditional practices critically and develop alternative strategies. The repeated failures of large planning projects are another trigger. These projects can no longer be treated as isolated activities, as these are part of a highly interconnected world, which is evolving through unprecedented non-linear chains of causes and effects. Within the planning community there is a growing awareness of a world beyond the planners' control, a world that is evolving in various autonomous ways. This abstract notion of our world developing non-linearly is a reason to explore emerging theories addressing complexity, non-linearity, adaptivity, co-evolution, transition and self-organization further. Notwithstanding the recent interest, the world in which planners operate has always supported self-organizing processes, even in the traditional, coordinative era of command-and-control policymaking and the controlled reality of technical and functional planning. In the communicative era of planning and policymaking self-organization processes are very much in evidence. Despite this, these processes were ignored, were overlooked, were taken for granted and never got much attention and therefore never became part of mainstream planning. They were just there and did not relate much to the planners' language of control, regulation and rationality or the planner's drive to reach consensus and shared responsibility.

Therefore, the question is: does self-organization matter in understanding spatial development processes and will such an enriched understanding support planners in addressing a world which is moving beyond our control? Here we adopt the position that self-organization processes do matter and are relevant to planning. We consider that understanding these processes supports our understanding of a reality, which is evolving spontaneously, and autonomously of our intentions, our purposeful actions and control and our desire for consensus. At present these processes are barely understood. In this contribution we aim to improve our understanding of self-organization by enriching planning thought with reasoning from the various disciplines, which relate to self-organizing processes and theoretical arguments such as those from the complexity sciences.

Firstly we will challenge linear assumptions, which are traditionally part of the planner's perception to the world. We will also challenge the urban being a product intentionally constructed. Processes, which take place unintentionally, are as relevant to the urban, and have to be appreciated as well to understand urban development. Secondly, with awareness of processes of self-organization we will explore the meaning of this notion and its linkages with various scientific disciplines, thoughts and proposals. This positioning of self-organization continues in part 3, where we scientifically acknowledge the possibility of a theory of spontaneous order. Central to this theory of spontaneous order are four fundamental steps out of which processes of self-organization exist. These four steps are being presented in the 4th part of this chapter. While these steps suggest a successively or linearly ordered process these steps do include non-linear behaviour as a fundamental part of self-organization. Throughout this contribution we assume self-organization to be more than a physical phenomenon. In particular in part 5 of this chapter self-organization is seen in the light of social systems in environments of change. If self-organization is as well a social phenomenon, a pressing question will be: what about the urban? And what about the planning of space and place? In section 6 we will argue about self-organization being a mechanism producing in spontaneous order has relevance to spatial planning. While spatial planning is discipline in support of 'purposeful interventions', we will see in section 7 conditions under which spatial change takes place are neither fixed nor stable. In part 8 we will see these are negotiable, and these are not representing a world as it is but a world which is progressing towards conditions, seeing for a fit which represents a balanced result, which can and will be challenged again at some point. And each challenge will come with a mismatch, a symmetry break or frictions which could trigger again processes of self-organization. The question that comes up is at what moment we can assume a process of self-organization is enfolding? Therefore we elaborate in part 9 about patterns as products of self-organization being existential and consequential. To conclude in part 10 planning can continue focusing on interventions, however no longer primarily addressing content and process. Instead the planner will relate its actions more on the conditions under which urban change takes place. This change could be supporter further or could be guided into a direction away from possible negative impacts, which could emerge, from the process of self-organization.

This is our intended approach: to explore the characteristics and mechanisms of self-organization and how these can be viewed in relation to the planning debate on theory and practice.



## WHAT IF ASSUMPTIONS FAIL?

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>> Few planners had taken an interest in non-linear processes long before 2008 and the crash in the housing, mortgage and financial markets in the West (see for example Allen 1997, Portugali 2000, De Roo 2003). Nevertheless, the crash made non-linear processes very explicit and difficult to ignore. The credit crisis proved to be a major challenge, which affected existing political and socioeconomic systems fundamentally. It brought to light the shortcomings of the critical assessment, feedback and correction mechanisms provided by regulatory governmental and economic systems. The control systems that were there failed completely. With it, the idea of people being in control collapsed. No one at that time had a clue what had caused the crisis, what course it would follow, and who or what would be affected. It meant we were in completely uncharted territory in deciding how to adjust, structure and regulate the situation after the crash.

Control and regulation are to the planning discipline what certainty and predictability are to most scientific disciplines with traditional, reductionist and neo-positivist orientations. This orientation is also very influential within the planning discipline, despite the idea of control and regulation having been strongly criticized since the nineteen-sixties (Rittel 1972, Simon 1976). And despite emphasizing the importance of the non-linear, we would not say that these traditional approaches to planning and their technical rationale as dated or outdated. However, we disagree about the validity of these traditional approaches in all types of real-world situation. We argue that traditional approaches are relevant under particular conditions: in stable situations where clarity, stability and certainty reign, in a world we could consider to be linear and straightforward.

Planning has emerged in the recent past into a level of understanding at which the world is viewed as being differentiated, with approaches and strategies, which are not just generic but are situation-specific as well. Therefore, there is more to planning than control and regulation. Alternative, interpretative approaches have been around for two decades now, with a rationale we would consider to be 'communicative' (Sager 1994) resulting in agreed realities. The unexpected crash in 2008 of various markets is supportive of even more approaches, which are alternative to and compete with contemporary approaches. These newly emerging approaches build upon a reasoning, which refers to the idea of a non-linear, spontaneous, and autonomously evolving world (Batty 2005, De Roo 2010, Rauws 2012, Portugali 2000).

Planners' growing interest in the non-linear connects with a world that is fluid, fuzzy and in a continuous process of discontinuous change. Such a non-linear world includes processes we term as self-organization. Self-organization as a mechanism is rapidly becoming a popular issue: is self-organization the cure for all the pain society is confronted with, with self-organization being

synonymous with 'problem solving' and 'self-regulation'? Of course it is not. Could self-organization be considered an expression of hope or promise, comparable to notions like 'self-made' and 'self-supporting'? Again it could not. Self-organization should also not be mistaken for a political agenda such as neoliberalism, with its emphasis on the individual taking opportunities 'by itself', or the welfare state, with the state supporting the individual 'self' with an institutional organization stretching from cradle to grave.

The danger of flash-in-the-pan popular ideas is that they can easily be laid claim to by a wider community not willing to invest much in understanding their deeper meaning. This wider community is likely to imbue these ideas with meanings drawn from common, traditional or intuitive understandings. Remember how this process made 'sustainability' meaningless (De Roo & Porter 2006). 'Compactness' is another such a notion, stressing the importance of dense and multifunctional space, such as the 'compact city'. The 'compact city' was praised in the past as a route to a sustainable urban future. Today it has lost its meaning, as everyone is turning the term to suit their own desires, while its assumptions remain by and large unproven (Jenks, Burton & Williams 1996). While 'spatial quality' goes back to Vitruvius and his understanding of quality as functionality (*utilitas*), sustainability (*firmitas*) and beauty (*venustas*) as mutually complementary terms, it is another example of an idea in planning which has lost most of its specific meaning due to the overriding power of common speech and the expert community's one-dimensional attention on functionality. However, a new word, phrase or idea could be treated with care, with due consideration for its deeper meaning. This is how we will treat 'self-organization' here.

## A SEMANTIC EXPLORATION

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>> Self-organization is obviously a combination of two words, each with its own specific and independent meanings. When viewed together, 'self' and 'organization' do not necessarily fit intrinsically, have an obvious co-meaning or logically add up to an integrated or synthesized understanding. There is no common denominator to provide a clear meaning to 'self-organization'. 'Self' could refer to 'me', being 'my own identity' (being my-self and knowing my-self), as in self-reflexive, self-assured and self-made. According to this line of reasoning, self-organization would refer to an organization's own identity, for example a self-made organization. This supports Rousseau's philosophy (1712–1778), emphasizing authenticity or uniqueness as an important quality for a 'self', an entity or an organization. This understanding of an authentic self considers the organization as such, standing alone, isolated from its surroundings, independent from its context. Some do define self-organization in this way: 'a process through which the organisation of initiatives, including the rules and responsibilities related to them, unfolds without intervention

of an authority' (Huygen, Van Marissing and Boutellier 2012). This however is not how we understand self-organization in representing a non-linear phenomenon.

'Self' could represent 'how it is', in the sense of 'being'. This sense of 'being' by a 'self' requires an object-orientation, which can only work with an observer present. From the observer's perspective, the 'self' is subject to experiencing the world around him/her 'by him/herself', which triggers emotions, thoughts and ideas. The 'self' is in this respect an observer experiencing his/her environment and being conscious of him/her 'self'. Some define self-organization accordingly, for example as 'a kind of social entrepreneurship with specific characteristics: intrinsic motivation, coherence with the surroundings through connectivity and fine-tuning, autonomy and creativity' (Huygen, Van Marissing and Boutellier 2012). In that case the observer is conscious of him/herself in response to his/her environment, not as a given but through interpretation. This 'self-awareness' in the sense of 'being' relates to how we consider ourselves in relation to the world we are a part of.

Descartes (1596–1650) was among the very first to reason as to what self-organization could mean, arguing that universal laws of nature represent the 'ordered' production of organization. This is quite an interesting thought! Consider a reality, which does not follow a path towards a stable, clear and orderly state, as dictated by the universal laws of nature: a reality which is not perfect, orderly or ideal. Such an 'out of control' reality could be an argument for intervention to reinstate order. It would mean identifying a route to reaching an orderly, perfect, ultimate, utopian or ideal outcome. Purposeful adjustments are in such cases meant to create a properly functioning environment. This concept in which reality is supposed to reclaim a balanced, stable or original state might seem traditional and outdated, but surprisingly it is not, as it is currently undergoing a revival. This revival strongly relates to one particular type of resilience, a notion about adjustments in support of maintaining its original 'self' or being, which is currently garnering a great deal of attention (Davoudi 2012). While the idea of adjustment is crucial to self-organization, which we will discuss below, the emphasis on 'being' substantially contrasts with self-organization as a non-linear process of becoming.

Self-organization as a non-linear process relates most of all to 'becoming' (Prigogine 1980, De Roo 2010, Hillier 2006). 'Self' could refer to a chain of events which does start somewhere 'by itself'. It triggers various connected entities, situations or systems, resulting in a sequence of moves, actions and changes, sometimes self-replicating, sometimes triggering effects at random along the chain of events, with all of this seemingly unorganized, nevertheless producing patterns. In a process of becoming, 'self' could be considered as 'effortless', 'without any attempt', 'going smoothly' or 'spontaneous'. We will return to this consideration, but before we do so we have to consider the word 'organization' first.

The idea of 'organization' originates from the concept of 'organs' (and the Greek word organon). 'Organs', 'organized' and 'organization' readily spring to mind when considering the meanings of 'self', stressing both the functioning and structuring of the 'self'. As such, 'self-organization' could be regarded as a pleonasm. 'Organs' refer first of all to an environment, which is biological. An 'organ' has a specific function as part of a wider structure, the body. The organ is often considered as a metaphor for a system, which is structured effectively with its parts responding mutually to each other. Organs are not just all the essential parts of and connected to a wider whole. To some extent they flexibly expand with and adjust to how the wider whole is developing, and are able to absorb negative impacts up to a threshold before giving up. Despite all this, organs are structured a priori, and do not display patterns in their behaviour resulting from self-organization as a non-linear process.

The ideas of 'organized' and 'organization' are primarily social constructs. The idea of 'organization' stresses an environment, which is institutionally structured to allow agents, as parts of the organization, to aim collectively for a collective result based on collective actions. Herbert (1963) considers an organization to be 'a whole of parts in relatedness, of things and events in a network of spatial and temporal relationships', organized on the basis of 'a certain structure to serve a certain end' (Herbert 1963: 200). An organization is strongly goal-oriented, which can be represented by a spectrum of options: the organization might be meant to maintain or support something outside itself or be meant to reach a new state of affairs. In all situations the organization is linked to an external environment. The organization carries out its actions purposefully, intentionally, with a well-informed internal structure ready to carry out its intended function. 'Organization' relates therefore to institutionally prearranged collective intentions, which contradict what we consider self-organization as a non-linear phenomenon to be.

The 'self' in 'self-organization' as a non-linear process is not so much referring to 'me', to 'how it is' or to 'being'. It relates more to 'by itself' and to 'spontaneous'. The 'organization' in 'self-organization' is neither pre-arranged nor intentional. Instead, it refers to pattern formation being the consequence of an unintended collective result. Cilliers defines self-organization as 'a property of [complex systems] which enables them to develop or change internal structure spontaneously and adapt in order to cope with, or manipulate, their environment' (Cilliers 1998: 90). Therefore, self-organization is not a process which aims a priori for a particular goal as such, as stand-alone or 'from within' as an organization would do. Self-organization above all emphasizes a situation 'without organization a priori', 'without purposeful behaviour' or 'without intent'.

Consequently 'self-organization' refers to a seemingly non-existent collective of disordered parts driven to effort or movement and through which patterns emerge as a collective result. 'Self-organization' stands for a spontaneous result

which looks organized: a pattern which becomes visible, which is observed by independent agents as something to respond to, therefore triggering further action out of which consequences emerge.

This is precisely what makes an organization different from self-organization. While an organization is a purposeful entity reaching out to its environment, self-organization must be regarded as an autonomous process triggered by and responsive to its environment. Organizations are prepared for intentional actions. Self-organization processes will unfold without intent if the right conditions are met, allowing structural change to happen. Well-known examples of self-organization are the spontaneous emergence of patterns in traffic flows (Kerner 1998), pedestrian movement (Helbing et al. 2001), bird flocking (Hemelrijk & Hildenbrandt 2012), schools of fish (Camazine et al. 2003) and many others.

To what extent all these spontaneous patterns emerge without pre-informed behaviour is not always easy to determine. Traffic flows and pedestrian movement do have culturally informed agents in common. And each and every agent is on the road to intentionally go from A to B, however not being there to produce intentionally patterns of movements or patterns of congestion. Self-organization in trail-tracking and wall-building by ant colonies is also not entirely undetermined and lacking in intent, as sustained information mechanisms are responsible for a kind of swarm intelligence (Bonabeau et al. 1997). As a result, swarm behaviour mechanisms become apparent which include positive and negative feedback in the multiple interactions among the individuals, leading to an increase in behaviour modification. However, in all these examples there is no clear strategy or programme, which determines a predefined and 'organized' outcome. This however does not mean that there is nothing to hold on to in grasping self-organization processes.

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## SPONTANEOUS ORDER

>> The self-organization process evolves spontaneously, giving rise to new structures, patterns or organizations within a system or a network as a result of interactions between its elements, parts, agents or actors, which are not externally controlled, coordinated or regulated (Nicolis & Prigogine 1977, Bonabeau et al. 1997, Bak 1999, Heylighen 2008). In that respect self-organization is a process which creates spontaneous order. 'Scientifically self-organisation relates to natural selection and other evolutionary mechanisms' (Kello et al. 2010: 223). Abstract knowledge about how this self-organization process evolves could be regarded as a theory of spontaneous order. We know that initial and contextual conditions are important in these processes, as are the presence of fluctuations and the existence of positive and negative feedback loops. These characteristics have been identified within physical, chemical, biological, ecological and social systems.

## WHAT ABOUT THE INVISIBLE HAND?

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>> Being organized is subjective to the observer. It is a characteristic we lay upon the world we perceive. Observations made to evaluate a situation that is not anthropocentric (for example morphology, cell structures, flocks of birds and schools of fish) bring into the picture elements connected with a seemingly well-structured whole. We assume such a structure is a consequence of universal laws, biological programmes or social conventions. The observer would consider these laws, programmes and conventions as the intrinsic 'intent' of a system, which determines the system's behaviour, and that of its parts a priori, using predetermined and pre-established mechanisms to connect these parts. Intent has metaphorical meaning when referring to non-human parts or agents, which lack conscious action and purposeful behaviour. These parts have no intent to march in step or to act according to any law or programme whatsoever. From their 'perspective', stuff just happens. Due to an understanding of universal laws, biological programmes or social conventions, the observer is nevertheless able to understand this happening as part of a determined process of change. The understanding of determined change and the Newtonian reasoning supporting this understanding was for several ages so successful that it often displaced observations, which did not fit well within the Newtonian frame of reference. Not all of these observations were ignored, however...

In 1776 Adam Smith proposed the idea of the 'invisible hand', the self-organizing mechanism within economic systems. Krugman (1996) illustrates the economic consequences of self-organization, 'something we observe and try to understand, not necessarily something we want' (Krugman 1996: 5–6). Economics is about what individuals do and value, traditionally considering individuals as self-interested agents. The societal impact of these individuals (the parts or agents) might be disappointing and might even contribute to a crisis, such as the global credit crisis of 2008. In response to this and being aware of increasing interest in self-organization, Krugman reminds us that self-organization is not necessarily a process with a positive outcome. This refers to Hardin, who introduced the concept of the 'tragedy of the commons' (Hardin 1968), proposing the idea of a higher order being required to intervene and set conditions should individual actions amount to disastrous and destructive consequences for the group (the commons) as a whole.

The concept of self-organization has been re-introduced through the works of W. Ross Ashby (1947) in cybernetics (see also Yovits & Cameron 1959, Foerster & Zopf 1962, Krohn, Küppers & Nowotny 1990). Self-organization was also touched upon implicitly in writing on cybernetics by McCulloch and Pitts (Portugali 2011). Cybernetics has had a strong effect on systems thinking, and systems thinking have had a major impact on planning theory. Despite this chain of interests, self-organization did not get much if any attention in planning theory. Self-organization gained wider attention through the work of Prigogine and



Nicolis (1977), which introduced dissipative structures and systems (see also Pagels 1988, Hayles 1990, Keller 2009).

## DISSIPATIVE STRUCTURES

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>> Dissipative systems are boundary breaking, and adapt and self-organize through their interactions with their environment (Bor 1990). Dissipative structures are synonymous with self-organization within an open systems environment, and their irreversible mechanisms allow energy, matter and – as added by Eigen (1971) – information to be exchanged between the system and its environment, triggering the system itself to change. Dissipative systems exist in situations which are out of equilibrium and which are therefore not in a stable state. Instead, these systems continuously transform, reposition themselves, seeking best fits, and gaining, absorbing and transferring energy, matter and information. Systems exist, persist and even progress while being out of equilibrium, in a flow (of multiple agents) through which interactions between systems and within systems result in dynamically persistent new patterns and transformative effects. Dissipative systems evolve as a result, and Prigogine made us aware of the role of self-organization in the emergence of these transformative patterns (Keller 2009).

Prigogine's work opened up a wonderful world of non-linear relationships, with surprising examples ranging from self-organized Bénard cells (also known as the Rayleigh–Bénard convection: Getling 1998, Koschmieder 1993) to fractal structured cities (see the simulations conducted by Batty 2005, Torrens 2012). Prigogine's work is supported by additional ideas from Hermann Haken (1977) and his theory of synergetics. Humberto Maturana and Francisco Varela (1980) and their concept of autopoiesis also made a substantial contribution. It contributed to proposals for self-organizing communities (Luhmann 1984), infrastructure systems and urban networks (Batty & Longley 1994). All these ideas and concepts are part of the wider idea of complexity and non-linearity, and contribute to or build on the notion of self-organization.

## FROM THE OUTSIDE AND FROM WITHIN

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>> While Prigogine stresses external interactions, Haken's synergetics (a term he considers more or less synonymous with self-organization, see Keller 2009) explains interactions within the system (Haken 1977). At system level, energy, matter and information are absorbed, used, transformed and transferred, resulting in both stable phases and dynamic phase transitions. The system will show an increase in pattern-formation through self-organization processes among subsystems, which we perceive as 'order'.

Maturana and Varela (1980) explain how subsystems are capable of reproducing and maintaining themselves through their autopoiesis model. According to Jantsch (1980), autopoietic self-organization would then be the 'self-maintenance and reproduction of systems, or the inward orientation of social systems that is about self-maintenance, identity forming and stabilization, and reproduction'. The focus is on subsystems, which are considered to function more or less autonomously while being 'structurally coupled' with their contextual environment. Through this process of autopoietic self-organization, the system can stabilize, form a structure, differentiate itself from its environment and maintain its identity self-referentially (Luhmann 1995, Flood 1999).

It is not that hard to imagine these external, internal and bottom-up processes influencing each other and being the mechanism through which the system transforms. These transformative mechanisms structurally couple more or less autonomously functioning subsystems and their contextual environment. This offers us a conceptual understanding of our reality, comprising very many layers, with each layer interacting with a higher level, exchanging energy, matter and information, and digested within the system and its subsequent parts, and by which the system and its parts transform. In other words, self-organization resonates through the various layers a system relates to. Obviously, changes in the subsystems, which affect the system as a whole, will have an effect on the system's interactions with higher levels of existence. Perhaps systems at the levels beyond the immediate context of the system within which the self-organization process was initiated will be triggered as well. And so on. The idea of the various levels of scale interacting is evident across disciplines, and relates to 'scaling laws'. These 'scaling laws' are among the factors conditioning self-organization processes. This means a system and the self-organization processes by which the system can be affected are sensitive to change at all relevant scales, and the mechanisms of self-organization allow systems to evolve and find best fits with their environment (Kello et al. 2010: 223–224). The result is a highly connected world of systems interacting with various levels of scale. It is an open world in which structure and function, and content and process are not regarded as isolated from their environment. Instead, content and process are highly dependent and determined by their context. In such a constellation the world as it 'is', fixed and stable, can no longer be.

The consequence is that we have to consider reality as not just generic or universal, but also as situational and specific. Such a specific situation is allocated to a particular place at a particular moment in time. If the right conditions are met at such a place at such a moment, a spontaneous change might occur due to a self-organization process. This view is fundamentally different from a Cartesian, Newtonian, neo-positivist or modernist perspective.

Instead of 'one true' world, this brings us an exciting world, full of options, possibility space and windows of opportunity.

#### FOUR FUNDAMENTAL STEPS OF SELF-ORGANIZATION

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>> Self-organization is a process, and a rather special one. Self-organization is not intentional, it is autonomous and spontaneous. In representing a non-linear world in the process of 'becoming', self-organization produces new states of being, which is why self-organization matters. Agents and actors, being parts of a system, do respond to these new states of being. These new states of being emerge as spontaneous patterns, which are visible everywhere, around us, as part of everyday life.

Self-organization can be understood if we are willing to consider our world as not static but in a continuous state of discontinuous change. Instead of linear development, such a world will evolve non-linearly, including sudden changes, jumps and transformations. Such a non-linear world could be far more common than we are accustomed to thinking. It is also far more out of our control than we perhaps would like it to be. Within such a world the various parts, agents or actors behave more autonomously than we might have imagined, as we are used to seeing our world as something highly functional, well planned, full of rules and driven purposefully and intentionally. This might indeed seem to be the case, though we would argue that if we decide to allow ourselves to see spontaneous developments, we will see them surprisingly often, and we will see them everywhere, in traffic behaviour, informal settlements, the rise and fall of types of shops, and much more, as we will see in this chapter. We dare to claim that the world and our development depend on it. Each and every one of us behaves partially autonomously and without intent, nevertheless contributing to pattern formation and being attracted to patterns. Self-organization is an autonomous process, resulting in patterns we can perceive, understand, relate to, have confidence in and act upon.

Self-organization is a spontaneous process, and therefore beyond our control. Despite these characteristics, that does not mean it is a process we cannot understand. To begin with, self-organization evolves according to generic rules, and is nevertheless situation-specific as it unfolds. Social scientists are acutely aware of situation-specific processes resulting in rather unique events. While quite familiar to the social sciences, the phenomenon of unique events has also attracted the attention of some physicists. This has forced them to follow an approach which might be somewhat unusual within their field. Instead of conducting research confirming universal laws of physics, the specificities essential to make self-organization happen are taken into consideration. The results are interesting enough to be of support to social scientists in their struggle to cope with non-linear self-organization processes.

In the following we will dig deep to identify the various conditions under which self-organization occurs. We will identify four steps, which help to explain how self-organization processes do contribute to change and transformative processes:

- The first step is the creation of a symmetry break, a mismatch in an existing situation.
- While this symmetry break is increasing it builds up energy which will eventually lead to the second step: reaching criticality.
- Step three is what happens beyond this critical point. Various parts, agents and actors respond individually to the symmetry break or mismatch, all in an effort individually to reach a 'least effort' state or a 'good or preferred fit' with the environment.
- While there is no agreement or collective intent in responding to the fact that the symmetry break has reached its critical point, it nevertheless results in spontaneous pattern formation. This pattern formation is the fourth and final step in the self-organization process: an unintended but collective result.

While these successive steps seem to present a linear process, these are carriers nevertheless of non-linearity. In particular 'step three' represents a process of non-linear 'adjustment' to getting beyond a 'critical point'. The pattern formation that follows will also function as an attractor for more and other agents and actors to become part of it or to respond to it, which makes the pattern formation a stepping stone towards developments to come. Self-organization is a stepping-stone to so much more. Consequently, it is important in order to understand more about this self-organization process, about how it functions, under which conditions and to what kind of consequences it can lead. There are also relevant questions from a planner's perspective: can we use these spontaneous, self-organization processes? Can we influence such processes at all? So here we go...

## A SYMMETRY BREAK

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>> Self-organization as a non-linear process relates first of all to structural change, through which a – in our context spatial – pattern emerges 'by itself'. Some use the word 'spontaneous', some prefer 'autonomous', some say 'coincidental', but in all cases it is an 'undefined becoming' (Boelens & De Roo 2014). Here we argue this change 'by itself' is a change in a response to something undefined which has its origin in deeper layers, in the context and/or in the past. While self-organization relates to an undefined becoming, its cause is also undefined. However, probably the best way to pinpoint the undefined cause of self-organization is a symmetry break within an existing structure.

Let us first imagine a non-systemic, isomorph environment. Its basic structure would be a collection of parts positioned in a least-effort state. Bak's piles of grain (1999) and Bénard's heated water (1901) are good examples, which we will explore in greater detail later in support of our argument. We would expect an isomorphic environment to be in equilibrium. Nevertheless, for undefined reasons, parts become dislocated, having been perturbed from their original location, building up tensions around a symmetry break or single-phase interface. This symmetry break causes a structural or topological change, a shift which pushes the situation away from the local stability it was in. This is the beginning of increasing tension within the existing structure, which comes with high interfacial energy and relatively weak bonding. The break becomes structural, and will at some point (once it reaches criticality) lead to a bifurcation (Keller 2009) from a particle's perspective and differentiation from its isomorphic environment. It is the preferred spot for the onset of a slide and for the precipitation of a new pattern.

Every kind of self-organization somehow started by a symmetry break being pushed beyond its critical point. It might be unclear what triggers this symmetry break: an unknown, undefined, internal or external initiator. While self-organization is considered a bottom-up approach, the initiating factor for a symmetry break to occur (step 1 of a self-organization process) might very well be contextual. For example, a contextual force or dissipative energy, matter or information flow more or less evenly spread throughout a contextual plain or coming from a specific angle, triggering not only one particular system but also its immediate (and perhaps even its wider) environment, resulting in a planar movement. Such a movement could trigger systems, subsystems and their environment all at once, resulting in a major shift in interdependencies and in a shifting balance between structures and their functional meanings. Or parts of the system could resonate with the interacting environment, triggering just a set of subsystems, but still triggering enough to result in fundamental change, including a shift in balance between structures and their functional meanings.

Vesterby (2008) refers to a 'collision situation', being the very beginning of a symmetry break: an external movement interferes and initiates internal movement, which triggers the first stages of self-organization. The Bénard cells experiment shows a contextual change which could trigger parts or agents, having an effect throughout the system's or the agent's contextual environment: a plain field of changing conditions (Koschmieder (1993) calls this weak turbulence) flows through the system, triggering effects. Bak (1999) has studied self-organization creating symmetry breaks with periodic interference from its context. Emery and Trist (1965) have defined a variety of contextual influences. All these interferences create a 'collision situation' out of which symmetry breaks occur.

Vesterby (2008) qualifies self-organization as 'essentially exceptionally simple at its beginning', after which it could develop further, going through many

stages. He made a serious attempt to identify the 'origins of self-organization'. An idea of space, motion and substance are enough to understand how seemingly organized structures and patterns do emerge. Space allows substance to be initiated for ongoing motion, the speed depending on the kind of substance (which relates to some extent to its 'Reynolds number' ( $R_c$ ), which is explained later in this text). The continuing motion of the substance will result in self-referential interactions, with substance reaching a new status quo, a replacement of substance, which has come to an end having reached a new stability. As such, it acquires 'self'-organization through spatial patterns becoming manifest at a certain point on a time-space continuum. In other words, to any observer this self-organized process in space becomes a pattern formation in some kind of substance at a particular moment and place, through which this pattern acquires identity, meaning and congruent structures and functions.

This movement of substance is visible around us. For example, tectonic plates moving along each other or pushing one another up or down, creating tensions and frictions, which build up energy until criticality, is reached. The energy released in such moments usually results in barely noticeable shakes. However, an earthquake can happen with a magnitude, which is beyond imagination. These shakes are all the result of symmetry breaks reaching criticality, sometimes generating destructive powers. An accumulation of water drops exceeding a critical point will be the beginning of an escape of water, becoming a flow, progressing into a stream and after some time becoming a river, which organizes a route for itself based on the physical conditions it encounters. The initial stage of Lorenz's famous story of the butterfly (Lorenz 1996) can be considered as a sequence of processes of self-organization: the butterfly flapping its wings triggers a chain of air movements which vary in pressure, gathering speed and pressure differentials, eventually building up to a tremendous force which is released with destructive power after a period of time, whipping away anything that is in its way, including houses, villages, towns and more. A flock of birds starts with one bird taking off for whatever reason: the trigger could be internal (an itch) or external (the sight of danger or a source of food). It does however trigger all the other birds in its vicinity to also take flight. All of them then group together while flying away, becoming a flock of birds on the move. Panic within crowds, such as the incident on 4 May 2010 at the Dam, the main square in the centre of Amsterdam, the Netherlands, which disrupted a minute's silence during a memorial for the fallen in the Second World War. The incident started with no more than a scream from within the silent crowd. It created sufficient criticality to have an immediate effect. Cameras overlooking the square showed a rapid outward movement, with all individuals appearing very certain of what to do without negotiating with or consulting each other, revealing the emergence of a spontaneous pattern.



While these examples nicely colour the message of what we understand by a symmetry break, they also represent a world far from Bak's non-systemic, isomorph environment (Bak 1999). While the similarities are obvious, we have to be very conscious about the validity of Bak's findings in a world, which is more diverse. What these examples have in common is that it does not matter much what triggers the symmetry break, which begins the self-organization process. What matters is the occurrence of a symmetry break, and the increase of the break towards the criticality which precedes a change, a response or an adjustment. The first step in the self-organization process is a symmetry break.

## REACHING THE CRITICAL POINT

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>> We consider the occurrence of self-organizing events as a consequence of mismatches or symmetry breaks between the parts of a system. These mismatches or breaks do create tensions and conflict within the system – the structural setting of the parts of the system and their functions through which these parts contribute to the system no longer have a 'least effort' fit. In a social world we would argue the relationship between a system and its environment is no longer optimal, functional or appreciated, and frictions arise. Instead of linear adjustments these breaks accumulate tensions or frictions, with a critical point standing in between order (nothing happens) and chaos (turbulence breaks lose). Any small behaviour at or beyond this critical state could start a chain of events, affecting parts of the system with consequences for the system as a whole, or with influence beyond the system affecting a wider environment. Bak et al. (1987) studied avalanches in grain piles. They watched and wondered at how numerous avalanches would suddenly occur in these piles due to grain being added from above. Avalanches happen the moment a critical point (threshold) is reached. Common sense would dictate the inference that a small change would lead to a small shift in the grain pile, while a major change would lead to a massive avalanche. Bak et al. found something entirely different. The grain in the pile which reached a critical state had no correlation between cause and effect. 'The system self-organizes its internal structure independent of external causes' (Portugali 2000). There is no correlation between the change (a perturbation) and the condition which makes this change happen (details of a perturbation). Dropping another grain onto the pile could cause a massive slide, but it could equally cause hardly anything to happen. The avalanches represent a self-organized response to change. In other words, the criticality is self-organized. Bak et al. were the first to discover a dynamic system displaying self-organized criticality (Bak, Tang & Wiesenfeld 1987). Criticality is essential in a self-organization process (Bak 1999). Self-organization occurs in a system which reaches a particular threshold, a critical moment or criticality, which is the moment energy is released, agents start moving around, the information a message contains takes effect, after which pattern formation

processes emerge. The result is a varying degree of change, from abrupt events (grain pile), and periods of varying turbulence (Bénard cells), to a multiple and fuzzy imprint of a chain of events.

## BEYOND THE THRESHOLD: ADJUSTMENT BEHAVIOUR

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>> Remarkably, reaching beyond a critical point leads to a period of fundamental uncertainty. It is not possible to identify a priori an outcome of this period of uncertainty. It is a contribution to non-linearity in its most sublime form, the invisible hand all over. It is in the world of quantum physics that uncertainty has been recognized as fundamental. Fundamental uncertainty is also an intrinsic part of self-organization, which can be seen in the human world. The context of the system being influenced by self-organization can be influential to the creation of a symmetry break and of reaching the threshold; what follows next in the self-organization process occurs independently from contextual triggers. Therefore, the spontaneous pattern formation (step 4, the end result of self-organization) is not considered to be contextually influenced: 'the rules specifying interactions among the system's components are executed using only local information, without reference to the global pattern' (Camazine et al. 2003: 8).

While these outcomes seem fundamental, we have to question them again as they have been deduced from Bak's experiments with grain and their non-systemic, isomorph environment. The same is true of the validity of Bak's findings the moment we copy their seemingly fundamental outcomes to a world which is diverse and social. While a social environment is far more complicated than the grain pile Bak used in his experiments, his experiments present a slightly more complicated situation than the 'three body problem' Poincaré tried to solve in 1887 (Mackenzie 2012: 199, Stewart 2013: 136). The three body problem is about three objects which interact with each other (either colliding or attracting) and about which we know precisely their position in space, their weight and their speed and vector. While all the data is there, it is nonetheless impossible to describe the bodies' future paths and positions, as the motion of the three bodies does not proceed according to universal rules of physics, which can be generalized into axioms. The moving bodies are the very beginning of a discussion, which resulted in chaos theory (Gleick 1988). Bak's pile of grain is not a 'three' but a 'multiple body' problem. A grain will collide with various other grains, all far from being perfectly round, and all uniquely settled within the pile. The grains do not just collide or attract but also act as buffers, absorbing dissipative energy within the pile until the energy escapes, hence the criticality. Poincaré's 'three body problem' questioned the Newtonian perspective of science, and with Bak's analysis we shift even further from this perspective of ideal situations and ideal science, to real situations and to science, which has an eye for situation-specific conditions and unique outcomes. The grains all have

multiple friction points, which keeps them in place, but also contributes to the friction and to the criticality. At some point this will result in an avalanche, but we cannot predict when. The result of the avalanche is also unknown a priori. Will it be a minor or a major one? The human world is far more complicated than Bak's pile of grain, with multiple categories of agents, all floating around, all interacting, with mismatches everywhere, which do not add up to one clear moment of criticality. Instead, there are many such moments, resulting in various 'avalanches', in 'adjustment behaviour', the cause of which will not always be clear. In the human world a clear-cut 'avalanche' or straightforward 'adjustment behaviour' is not necessarily the only result which can be expected from a symmetry break reaching its criticality. The response will almost always be multiple and fuzzy, and the impact can be such that it is hard to ignore: see the French revolution which began in 1789, the start of World War I in 1914, and the 2008 global crisis on housing, mortgage and finance.

In other words: with self-organization processes and their unique and abrupt events we have to accept and address fundamental uncertainty at the human scale. According to Bak (1999), the off-balance critical state will lead to a chain of non-linear, spontaneous events varying in magnitude. These events are neither regular nor periodic. These abrupt events could range from small to major adjustments lacking linear relationships in how they are triggered.

The study of 'Bénard cells' offers another example of self-organization. Bénard (1901) did his famous experiments as early as 1900. He investigated a fluid in a dish which he heated from below. What he found was surprising. Instead of just the vertical upward movement of heat being transported, he also observed a horizontal layer of convection fluid. A quite regular pattern of hexagonal convection cells appeared due to a peculiar mix of buoyancy and gravitational forces. These cells have come to be a landmark in the study of non-linear developments exhibiting self-organization and pattern-formation mechanisms. They are the 'granddaddy of canonical examples [...] to study pattern formation and behaviour in spatially extended systems' (Newell et al. 1993).

It was Rayleigh (1916) who demonstrated that these convection cells only occur when a critical value ' $R_c$ ' is reached (Ma & Wang 2007). This ' $R_c$ ', or 'Reynolds number', is a non-dimensional value which relates to contextual conditions (temperature difference and gravity) and structural criteria (the liquid's viscosity and thermal diffusivity), giving expression to fluid motion and heat transfer (Getling 2008). Once ' $R_c$ ' is reached, a transformational period of turbulence results in the appearance of hexagonal convection cells. Koschmieder (1993) adds to this the differentiation between 'weak turbulence' and 'turbulence'. 'By weak turbulence we mean irregular, nonperiodic, time-dependent flow with slow variations with time and slow motions. By turbulent we mean rapidly and randomly varying flow at high Reynolds numbers [ $R > R_c$ ;  $GdR$ ] with very fast variations with time, relative to the vertical thermal relaxation time' (Koschmieder 1993: 116). Beyond a critical point  $R_c$ , self-organization represents

the movement of parts, agents or actors seeking balance within new meaningful links, adjusting structurally and functionally towards a new state of congruence, consequently becoming manifest in emerging patterns.

Bak (1999) warns us not to be biased by a positive attitude towards self-organization. The avalanche of activity by agents (particles, bodies, individuals or actors) responding to changing conditions after a critical moment has been reached does not say anything about the agents' appreciation of being able to move around, to seek alternative and better positions. From a neutral perspective, such positions are nothing more than a 'better fit', a 'least effort state'. Zhang et al. (2016) describe renovations in the Beijing neighbourhood of Nanluoguxiang, to which various groups respond in different ways. A substantial group of residents have moved out. Others started participating in projects in which local entrepreneurship is linked with tourism. Tourists, for their part, also responded to this local entrepreneurship, but in such numbers that it triggered various developments which were not foreseen: congestion on the main roads, replacement of local entrepreneurship by international chains, the flight of more residents. How good or bad are these moves, these responses and this adjustment behaviour? This is of course subject to the observer.

## SPONTANEOUS PATTERN FORMATION

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>> The message that the complexity sciences deliver is that everything is connected. Internal adjustment mechanisms or rearrangements among the parts, agents or actors in a system can readily be initiated in some way by external interference (sometimes called 'global information'). The response is randomly related and seemingly chaotic interactions, which somehow bifurcate. All these steps, developments, moves and adjustments present us at some point with a pattern. A pattern we might understand and perhaps add meaning to, and a pattern, which represents the emergence of a new order. 'In the words of complexity theorists: a process of autonomous development and the spontaneous emergence of order out of chaos is called self-organisation' (Prigogine & Stengers 1984).

The self-organization process is incomplete if it does not include spontaneous pattern formation. The 'self' in self-organization refers to 'spontaneous' and to 'formation', while 'organization' becomes manifest in the emergence of a pattern. In other words, out of an undefined cause and a non-linear process a result comes forth which is visible, which can be differentiated from inert and chaotic environments, which can be given meaning and identity in space and time. In this sense spontaneous pattern formation is synonymous with self-organization.

Spontaneous pattern formation is the consequential step in a self-organization process. This pattern formation results from a spontaneous rearrangement due to a symmetry break. Self-organization therefore means a structured change

due to undefined responses which trigger adjustment mechanisms: in a non-systemic environment such as a pile of grain (Bak 1999) or a glass of water (Bénard 1901) a structural break in an isomorphic environment becomes visible. The undefined cause of a symmetry break in a systemic, social environment could be structure-related but could also be a mismatch between structure and function, or a mismatch between functions.

A systemic, social environment is in abstract an environment of meaningful nodes connected with each other through meaningful interactions. These connected nodes are not just structure; they are also functional. The consequence of this reasoning is quite fundamental: systems do well if there is a match between structure and function. In a non-linear world this is not a fixed match. In a symmetry break caused by a structure-function or a function-function mismatch, the spontaneous adjustments, which can follow, could very well be functional without having immediate structural consequences. In this case spontaneous pattern formation could be a secondary outcome of the process, or it could manifest itself after quite some time.

In systemic environments such as a family house, a neighbourhood or the global economy, self-organization is considered to be a systemic adjustment effect of structure breaks, structure-function mismatches and clashes between functions. These breaks, mismatches and clashes trigger an avalanche of events after having reached a threshold or a critical moment, and which result in fuzzy and multiple patterns. For example, a 'family house' is probably a house for a family of a particular size, depending on culture, social conditions and policy restrictions. A change in culture (due to an increase in migrants for example), in social conditions (children no longer leaving their parents' homes at the age of twenty, but rather staying in the family home as married couples, perhaps due to housing shortages for new families) and so forth cause mismatches between structure and function to emerge. These mismatches are due to conditions under which structure and function operate, relate and acquire meaning. The 2008 global crisis in the housing, mortgage and financial markets is another example of fuzzy and multiple patterns emerging, which seemingly keep on triggering new events and the emergence of new patterns. In such a systemic and social environment, both structure and function progress towards new balances, different from the previous attracting equilibria, and a process through which both structure and function are able to co-evolve.

Seen in this light, self-organization is more than a self-replicating mechanism, which is self-similar, self-adjusting, self-repairing or resilient. The co-evolution and merging of structure and function often originates at a lower, decentralized level through which the system as a whole is affected. Self-organization represents a responsive situation, framing moving parts and emerging patterns with contextual change. The result is some sort of new order at a higher level. This new order could easily be the start of a chain of events, which could

lead to sustainable rearrangements among its parts, agents or actors under tension. These rearrangements or adjustments would then be an accumulative constructive process, which connects external and internal impulses coherently. While this is characteristic for processes of self-organization from a non-linear perspective, a relevant question will be how dominant the subsequent order of the four steps explained above will be. For example how much of a symmetry break is needed, which level of criticality results in an avalanche of adjusting behaviour? And we know already there is fundamental uncertainty about the developments beyond criticality, such as the size, robustness and impact of pattern formation. It is no surprise to see less 'mechanistic' explanations of how to see processes of self-organization. For example Boonstra (2015) taking a post-structural view also identifies four phases – decoding, contraction, expansion and coding – which resonate well with the four steps here described. According to Boonstra these “four forms of behaviour should thus be continuously combined, in order to have an effective process of becoming. Decoding and coding presuppose each other, expansion and contraction have to alternate” (2015: 124).

Self-organization is responsible for the occurrence of situation-specific, place-dependent and unique events. Self-organization therefore contributes substantially to uncertainty within social environments. However, this is also an invitation to planners to acquire an in-depth understanding of self-organization as a phenomenon. It will enable us to distinguish it from other processes occurring within the social environment. In other words, it will help us distinguish among uncertainties! Identifying the various phases of a self-organization process contributes to this understanding and allow us to identify commonalities and differences with self-organization processes, not just in the physical environment but also in social environments. This brings us to social systems.

## SOCIAL SYSTEMS IN ENVIRONMENTS OF CHANGE

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>> Self-organization is well defined from a 'hard' science perspective. How to view such a definition in a 'social' science environment? Vesterby (2007), for example, considers isomorphic space as a contextual environment of content floating freely in any direction. Self-organizing social agents however do not float freely, and are confronted with something, which differs substantially from isomorphic space. Social agents are conditioned (constrained and enabled) in various ways, and these conditions could themselves be under change. In a social environment change is probably the only constant factor, and in this changing environment social actors consciously consider and reconsider their motives for actions and the roles they wish to play. Such a changing environment, with mismatches everywhere, could be the perfect place from which to generate self-organizing pathways.



Planning practice is acutely aware of environments under change, and self-organization is a notion, which has gained popularity lately in relation to environments of change and peoples' responses to this change. This use of 'self-organization' resonates with the settling of issues in practice, which need to be dealt with independently of the planners' control, responsibility, plan, or agenda. This implicit understanding of 'doing it by themselves' or 'without the planning expert' is perhaps one of the most persistent problems in discussing and exploring self-organization within the social environment planners operate in. It is about alternative interpretations or the misinterpretation of self-organization.

Self-organization could be intuitively considered in a social environment to be the same thing as 'independently from' or 'do-it-yourself', with notions such as 'emerging self-organized civic initiatives' and 'self-organized behaviour' (Bakker et al. 2012, Hurenkamp et al. 2006, Marien et al. 2010). These understandings relate to active citizens and social groups which increasingly demonstrate their 'self-organizing ability', constructing (Bolender 2010) their own plans in response to governmental attitudes they do not agree with. Bang (2009) and Stolle and Hooge (2005) see informal and loosely structured organizations in which citizens organize themselves to address particular issues they are concerned about and interested in. According to Meerkerk (2014: 22), 'self-organization of citizens refers to bottom up initiatives which are citizens or community driven, which aim to deal with a specific set of public issues and which have the ambition to set up sustainable cooperation among citizens', while 'governments have become more dependent on self-organizing user groups, private businesses, and societal interest groups to implement their decisions' (Warren 2009, in Meerkerk 2014: 29).

However, such behaviour does not exclude intent; on the contrary. 'Self-organization' is also not regarded as a non-linear process, which results in spontaneous pattern formation. Instead it is synonymous with 'self-governance', 'self-regulation' and 'self-management'. Self-governance is intentional and is a generic term, which refers to processes of self-regulation and self-management. Self-regulation is intent all over, starting with a joint initiative and with actions in support of this initiative. Self-management, moreover, could be considered as intentional with respect to the action taken and consequently also with respect to its collective result.

The 'self' in self-management, self-governance and self-regulation can be understood as 'under the responsibility of a collective' without interference of a higher body, such as an authority or government. The 'self' in 'self-organization' would then mean 'without the responsibility of a collective'. In other words: 'without organization'. While self-governance is a process related to collectives operating between the individual and governmental levels of scale, self-organization is a phenomenon, which can emerge at any scale. Self-governance also differs from self-organization, with the latter being a non-linear process,

**FIGURE 3.1**  
Self-organization versus self-  
governance (self-regulation  
and self-management).

	Collective initiative	Collective action	Collective result	
Self-regulation	X	X	X	Intentional
Self-management		X	X	Intentional
Self-organization			X	Without intent

which unfolds without intent. Nevertheless, both self-organization and self-governance do show collective results. The collective result emerging from a self-organization process is typical: spontaneous pattern formation. Self-organization (or dissipative structures, synergetic mechanisms or autopoietic behaviour) is a phenomenon of nonlinear dynamics producing spontaneous but stable patterns, a new order which functions as attractor. Self-organization is 'the production of stable patterns observed in non-equilibrium systems governed by nonlinear dynamics' (Keller 2009: 17). Self-organization is part of and contributes to an alternative, non-linear world view, with processes of emergence and co-evolution, and with adaptive behaviour as a response to external influences. While its contribution is limited to spontaneous pattern formation due to symmetry breaks, self-organization is fundamental in creating spontaneous order and discontinuous change (Kauffman 1993) – 'self-organization is a spontaneous creation of some sort of order' (Heylighen 2001).

How should we view this non-linear self-organization process from a social science perspective? In various contributions (Portugali 2000, Heylighen 2001) in which self-organization is regarded as a non-linear phenomenon in social environments, self-organization is not considered very differently from how it is from a 'hard' science perspective, despite the conscious behaviour of social agents. Spontaneous patterns emerging within a social environment are explained as a collective result of actions by individual actors who unintentionally respond more or less in the same way to a symmetry break which has passed a critical point. Self-organization is still about producing and materialization of 'spontaneous pattern formations' and the actualization of it (Boonstra 2015) in a social environment, as a product of an unintended collective result.

Self-organization in social environments is attracting increasing attention. For example, self-organization in protest movements has attracted attention from Fuchs (2002), who is interested in a socio-political explanation of the concept of self-organization. He describes social movements as self-organizing systems because they have an internal logic, which arises spontaneously. Their output is the emergence of new protest issues, against contemporary structures and forces. These groups and movements are dynamic, not closed but open and coupled to an environment with which they exchange resources.

Various social scientists (Portugali 2000, Fuchs 2003, Heylighen 2001, Rauws 2015) are therefore explicit about self-organization being relevant to practices within social environments. Not all the studies of self-organization consider self-organization as strictly as it is presented above, including criteria such as 'lacking intent', structural change, emerging patterns, self-referential, functional adjustment, and the existence of external discontinuous interference. These conditions are essential for self-organization to be the outcome of interdependencies among moving parts, emerging patterns and contextual change, allowing a system to co-evolve internally and externally. Understandings of 'without intent', 'spontaneous' or 'autonomous behaviour' are particularly difficult to maintain within a social environment. Somehow, intentional behaviour is always somewhere in the picture. The social environment is the result of collective behaviour and collective behaviour quickly progresses towards institutional structures. These institutional structures are essential for inter-subjective exchange and expressing opinions, as 'individuals are only able to express themselves as actors in an institutionalized environment' (De Roo 2003).

According to Giddens et al. 'institutions are understood as the ensemble of norms, rules and practices which structure actions in social contexts' (in Healey 2006: 302). Institutions mobilize and regulate social action. As such, institutions 'can enhance the adaptiveness and sustainability of the system' (Innes & Booher 2010: 38) and therefore can be transformative (Healey 2003) through relationships and interactions.

How then to imagine self-organization in a strict sense, without intent, without social framing, without institutional preconditions? We believe 'intent' makes the difference. Self-organization in a social environment would lead to structural change as a collective result without intent. A collective result emerges out of individual actions by individuals who have not interacted before, and who have not previously made arrangements or agreements.

Humans have memories (quite fortunately so, but...), which makes it hard to be strict about intent. For example the bicycle: it may well be an accepted part of cultural behaviour to ignore the rules set by local authorities while cycling – in quite some countries bicyclists behave as anarchists while moving around in traffic. If so, we can predict what will happen the moment a bike path is blocked. The officially designated alternative route will not be followed, as the obstruction will be bypassed, which will consequently result in an alternative but informal path. In that respect there is a cultural heritage, which results in collective behaviour and a collective outcome, despite the lack of purposeful action as a collective. Intent is embedded in socio-cultural behaviour and a remembrance from past actions.

While a social complexity environment is not clear, straightforward but rather fuzzy, fluid and vague, we are willing to argue that self-organization 'lacks the

**FIGURE 3.2**

An alternative 'bike path' is being created through a process of self-organization the moment the official path is blocked (Photo: the author).



intent of collective action to achieve a collective result'. The moment collective action or a collective result becomes intentional, a kind of self-governance develops. In collective action we consider a kind of 'collective arrangement' to be taking place. A collective result we consider 'self-management'. Where we are addressing a collectively agreed set of conditions, the right word would probably be 'self-regulation' or 'self-governance' (see Figure 3.1). The various forms refer to the existence of a grey area in the understanding of intent, the difficulty of excluding the purposeful and predetermined behaviour of collectives and the implicit awareness of institutional design. In these social environments there are also uncertainties about the extent and the impact of emerging spontaneous patterns. Will there be a minimal response or will the pattern be massive, or will it be something in between? Of course, due to the presence of non-linearity, no one can tell.

### BEING READY FOR CHANGE

>> Self-organization represents a situation in a constant state of becoming, balancing its way through a context of discontinuous change. While self-organization suggests a state of unintentional organization, this does not mean that the social system is impassive to self-organizing processes. On the contrary, aside from social systems to be organized intentionally for the sake of the organization and the goals, which are set, we argue social systems could or should also be organized in such a way as to have the system prepared and ready for spontaneously occurring change. In those cases the social system

or the organization is willing to bend along with the dynamic changes in the environment it is part of, or is trying to mitigate the possibility of unwelcoming effects emerging. This is sometimes more fulfilling than opposing these contextual changes, which is often done to obtain a misplaced sense of being in control. To organize a system to be ready for change means that we have to consider the conditions a system requires responding well to self-organizing processes.

Self-organizing processes in social environments show that patterns are the result of (perceptions of) structure breaks and of (assumed) tensions and struggles between functions and structures, which are activated and readjusted selectively. An event, which is initiated within a social environment (for whatever reason), is likely to trigger various actors and factors within its subsystems and even its wider environment. In other words, social self-organizing processes occur within plural and multi-level environments. Such a plural and multi-level environment is by definition dynamic – a strongly interacting environment within which any social system openly relates with and is influenced by its social, sociocultural, socioeconomic and institutional context, resulting in a mixture of stable and unstable patterns.

Imagine a church, mosque or temple in a secular society with a population rapidly abandoning its church, mosque or temple-going routine. While the function of such a building evaporates, this is not necessarily destructive for the building itself if the revenue flow continues to come in, permitting maintenance to be carried out. The moment the financial situation also changes, which is likely to occur at some point, another and more serious situation emerges. This is a delayed response, which nevertheless co-evolves with the decline of active involvement of people in religious affairs. At that point a mismatch between function and structure becomes tangible. In cities in Western Europe this has resulted in various outcomes. Some religious buildings have been transformed to fulfil new functions, such as libraries or sports halls. Some of these buildings have been transformed into multi-functional buildings or have disappeared altogether. Parallel to this phenomenon, we can also see religious communities meeting in alternative locations: clubhouses, community centres, abandoned warehouses etc. These changes, due to a mismatch of function and structure between religious activities and the buildings used for these activities, show a pattern of transformation, but not always clearly and not always in the first degree.

Over the last twenty years or so we have observed policies responding to the increase in car use and its consequences, which have brought to light another example of self-organization within the urban environment. The accessibility of inner cities, the difficulties of finding parking spaces and clashes with other users of the inner city constrain both the car user and the various functions the inner city is supporting: a job-creating environment, space for shopping



and entertainment, spaces for relaxation, leisure and the enjoyment of culture. Banning car traffic in city centres triggers a chain of events, some of which result in patterns, which last for some time. Some are intentional, for example the organization of public transport links from car parks outside the city into the city centre. Some are spontaneous; new routes are discovered into neighbouring areas, alternative parking spaces are secured, and an increase in cycling into and in the city centre is observed. While triggered by intended policy interference, such new patterns can be considered the result of self-organizing processes. The sociologist Henri Lefebvre has been rediscovered within planning the last couple of years. In his essay 'The Right to the City' (1968) he reasons that only if citizens are able to determine their own conditions will a city become a liveable place. The essay presents his analyses of the functional tensions between the exchange value of real estate and its use value for citizens. Lefebvre addresses tensions, which can be functional in a structure-function relationship, his point being that these tensions are also discursive. A discursive understanding concerns the relevance of power structures hidden in and behind more 'objective' functionalities. Discursive tensions are therefore the result of a mismatch or a symmetry break in power relations. From Lefebvre's argument we have to conclude such a mismatch will also have a structuring effect on the built environment. Such a structuring effect is not governed but evolves spontaneously, and is thus a self-organization process.

Harvey (2008) adds that 'the right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights'. In other words, power relations on the one hand and individual and collective choice on the other can also lead to an outcome, which is a response to something perceived as a symmetry break. Take note of the word 'perceived'; in the social milieu it is not always essential for a symmetry break to be completely real, what matters is how people perceive things. Again, the result is spontaneous pattern formation. Clearly, like a physical landscape, a social landscape is also full of symmetry breaks, both real and perceived, which allows pattern formation to occur. The interacting human and its role as an actor among other actors, its behaviour and its actions are central to a social landscape. Humans are self-aware and aware of their position within a wider environment. This environment evolves from symmetry breaks into the emergence of new patterns, with humans playing a role in the various steps in the process. Humans are also able to give meaning to what they perceive. In that respect they are able to differentiate between structure and function. They are able to relate structure and function, considering them to be either a good match or a constellation, which does



not work, or does not work anymore. A good match might very well relate to some kind of stable pattern. A mismatch could be accompanied by instability and dynamics, which demand a rearrangement of structure and function at a particular moment and place. This rearrangement could temporarily result in a good fit internally and externally and the beginning of a new period of stability. If structure and function continue not to relate well, and a mismatch persists, this will probably trigger a further change process at some point in the future. If not, the arrangement of structure and function could sink back to a level, which it had previously abandoned, or fall apart and disappear entirely. Consequently, intent, consciousness, self-awareness, anticipative behaviour and strategic reasoning do not necessarily position humans outside unintended and spontaneous self-organization processes. All these characteristics of the human being are somehow connected to and part of the game, and require a deeper understanding of the self-organizing processes which occur within a social environment. It allows us to differentiate between organized, intentional behaviour and unintended, spontaneous self-organization at various levels of scale. And we are able to understand urban patterns as a match between structure and function.

## ANTICIPATING FUTURE CHANGE

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>> Humans thrive by expectations about their environment and about what might happen. This doesn't mean humans are also aware of their environment being in a process of change. But they are capable of thinking through developments occurring in time and in such case are therefore able to anticipate or respond to the expected and (to some extent) unexpected consequences of ongoing changes and non-linear self-organization processes. This anticipative behaviour could support our desire to enhance positive results from self-organization processes, and it might lead to our interfering in processes the results of which we assume are not going to be to our liking.

Aside from anticipating possible or likely results, we can also intentionally build on these collective results. We humans live in a highly organized and institutional environment, through which collective results are quickly evaluated as being worthy of being taken seriously or not. Consider a self-organization process producing a collective result, which is considered socially relevant. Such a self-organized pattern could become an attractor for intended action. In other words: self-organization lacks intent, but its collective result could trigger intentional behaviour.

Self-organization can be related to intended behaviour. However, there is one major 'but': people are perhaps able to anticipate mismatches and emerging patterns, and to choose to interfere in the self-organization process. We might choose to interfere, for instance, when an anticipated future is not to our liking. However, while we may be able to see symmetry breaks and spontaneously

emerging patterns, it is impossible to predict a priori the impact, size or extent of these spontaneous events. These events or pattern formations will vary in magnitude independently from their cause. What does this tell us about our daily environment and the desire to interfere? This brings us again to spatial planning.

### WHAT ABOUT THE PLANNING OF SPACE AND PLACE?

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>> 'It is widely recognised that the development of urban areas, understood in socio-economic and environmental terms, cannot be "planned" by government action in a linear way, from intention to plan, to action, to outcome as planned. Even where a government agency controls many of the resources for physical development and acts in an integrated and coordinated way, socioeconomic and environmental activities make use of the physical fabric of urban areas in all kinds of ways that are often difficult to imagine in advance, let alone predict. What goes on in urban areas is just too dynamic, "intricate and mazy"' (Geddes 1915/1968). Geddes' remark was made a century ago, and is still very true today. His observations should make planners aware of an attitude, which is different from what planners are used to. The traditional attitude among planners is to consider the world to be an objective fact of their own creation, with them in control. There is also the contemporary position, whereby planners are responsible for achieving consensus among stakeholders and constructing an agreed reality. In both cases planners consider the world as it 'is', factual, agreed upon and likely a mix of the two approaches. If we appreciate the existence of non-linear self-organization processes, then the world no longer 'is'. Instead the world has to be seen as 'becoming', and in this world of becoming, self-organization processes are found. How then to view self-organization in relation to the planner's attitudes towards spatial development processes?

To answer this we will focus first on the systemic behaviour of institutions and organizations. Social systems are organizationally and institutionally conditioned, which does not make it easy to recognize self-organization processes in a social environment. Societies produce institutions to reduce uncertainties, and to be assured of stable structures supporting people to interact properly with each other within their social environments. Institutions produce norms, standards, rules and conditions. These constrain members of a society to some extent, as well as enabling them to get along together. On the one hand, institutions are produced socially. On the other, institutions structure human behaviours (Healey 2006, North 1990). The consequence of being structured or organized in a social context is that people become institutionalized in collectives. An organization structures a collective institutionally.

Observations of such social systems, their structures, mechanisms, arrangements and logistics of interacting actors are likely to include a functional perspective. We consider the quality of systemic arrangements in light of the function we want the systems to deliver. These considerations almost always include the intent behind the collective's parts – the actors – to achieve something or to get somewhere, to reach a predefined goal (and if this is not within reach, hope or a desire will do as reasons to act intentionally). Social systems are almost always considered to have enhanced functionality when in an organized state.

Institutions and organisations are meant intentionally to realize a preconceived plan or some sort of predefined aim, and institutions and organizations always result in some sort of governance, due to the structured game of making choices and agreements. Realistically, their internal mission should be to get a properly organized state in place, to aid the achievement of a collective goal. In other words, to be organized a priori in support of a joint effort, with every part of the organization intended to be fully aware of this and fully committed.

Organizations and institutions are quite often unaware or simply ignore the idea of them having to face a world of change and organisations being open to non-linear developments. As a consequence of this ignorance, institutions and organisations will also create mismatches, clashes and symmetry breaks. Institutions thus become a source of unintended developments, including the now familiar concepts of 'adjustment behaviour' and 'spontaneous pattern formation'. In other words, while institutions are meant to structure our social environment intentionally, they also generate unintended self-organization processes. Why this is? Because this is how our world works...

One example is the consequences of constructing a tram line. Public transport routes are meant to connect places with enough capacity for citizens to move around within an urban environment. The allocation of such routes is very much a process of deliberation and intent. In general, it is fair to say that if there is a shortage of capacity on these routes, they can be replaced with alternatives. However, in case of a tram line this assumption is not easy achievable. A tram line is a long-term commitment. As a consequence, it can become an attractor for investment, which could include the allocation of shops and offices along the route. Based on the knowledge that such public transport links will be durable, the environment near these links and around the tram network nodes will change accordingly. These changes might be expected as consequence of constructing a tram line but they emerge spontaneously. The changes are unintended, and the result of such spontaneous change is therefore not guaranteed and will depend on a match between structure (tram line) and function (shops, offices, restaurants etc.), and between expectations and reality.

We could even go as far as stating that the announcement or the launch of a plan could trigger self-organization processes. The plan becomes an attractor to

which people respond, individually anticipating the consequences of the plan, out of which a collective result can emerge. The plan is the stone thrown into a pool of water, disrupting the status quo with water splashing everywhere due to the impact, followed by waves of concentric rings which progress away from the point of impact, bringing movement to the entire pool. This is what Zhang et al. (2015, 2016) have detected: a major shift in patterns of housing developments in Beijing. In its desire to restrict speculation on real estate products and to stabilize the rapid increase in housing prices, the Beijing municipal government has been implementing specific policy measures since 2005. According to the 'Municipal regulation and control on real estate market' residents no longer have the right to buy more than one house in the Beijing urban region. Since this announcement, residents have become very cautious in their selection of real estate products. It has created a shift in preferences in real estate products away from functionality (nearby) to quality (further away). It was expected that this would force real estate companies either to lower their prices or leave the Beijing market. Quite a number of them responded to the land use policy with a third option, which has led to unexpected land use changes. Zhang et al. (2015) argue this to be the result of a symmetry break they were confronted with: a change of conditions because the latest local policy fundamentally changed their business potential. The area they used to interact with and make profit from was suddenly in decline as a real estate market for home sellers. It stimulated numerous companies to shift their development activities from the city centre to suburban areas while simultaneously developing high quality communities. This is beginning to become visible as a spatial pattern within the Beijing region.

We can push our reasoning about institutional design and self-organization even further, pointing to an example within which self-organization as a concept is central to a policy intervention: the shared space concept. Shared Space is a traffic management concept associated with the late Hans Monderman in the early 1990s, advocating for spaces in the Netherlands to be left free of traffic rules and thus based on a self-organizing logic (Stalman & Wiersma 2001). The concept is counterintuitive from the perspective of traditional traffic processes, which are conditioned by top-down rules. However, areas that encounter sudden and dynamic changes in the use of infrastructure (schools, city centres, etc.) were found potentially to benefit from a reduction in accidents if traffic rules are removed. It generates a reduction in the perceived safety subjectively felt by the individual agent. It is to be expected the agent immediately becomes careful and alert in traffic. Generic rules are no longer a means of reference. The local situation and the immediate interaction with other users of 'shared space' will result in an increased sense of individual responsibility regarding how to move in relation to others. Instead of common patterns which relate to the continuous movement of people passing through, alternative and more individualized patterns will emerge, which relate strongly

to the locality itself, and through which the agent becomes better connected with the specificity of his or her situation. Not all responses to this approach are positive, as evidenced by the comments of the British peer, Lord Holmes, who in July 2015 stated that this policy creates ‘third world traffic situations’. Nevertheless, through this mechanism the reduction of subjectively felt safety does result in an increase in objective safety at an aggregated level. This concept is being increasingly promoted, with people being seen as self-conscious, self-guiding, self-responsible and so forth, and the concept being seen to result in a self-organizing process rich in adjustment behaviour and emerging patterns.

In investigating self-organization as a non-linear process relevant to spatial planning, what we are looking for ‘rules’ which make self-organization ‘happen’ and conditions under which self-organization could be influenced. Some serious achievements have been made in this respect (Byrne 2003, De Roo 2010, Portugali 2000 2011, Boonstra & Boelens 2011). This supports positioning self-organization as a representative of an alternative, non-linear perspective to planning. Understanding self-organization feeds the planner’s awareness of uncertainties not just as blanks, but of uncertainties, which include a whole package of rhythms, systemic rules, potentials and aspirations. This understanding could be about triggering, influencing, avoiding or even preventing self-organization processes from happening within the daily environment for the good of society. This understanding is, however, still rudimentary and at an exploratory stage, and there are plenty of issues which need to be clarified and studied further. This is what is needed to successfully introduce self-organization into mainstream planning.

#### WHAT IF CONDITIONS ARE NEGOTIABLE?

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>> Here we will consider the emergence of so-called elephant paths. These paths refer to tracks in the jungle, which are the result of elephants independently following the same route again and again, creating paths, which more or less sustain out of nothing. Such paths are everywhere, and they are the consequence of a self-organizing process. We can also observe them in our daily environment, with sustainable paths emerging in parks, on fields of grass, as a consequence of various people taking the same route. Quite often such a route proves to be an efficient shortcut. Yamu et al. (2016) reflect on its morphology from which ‘we can depict the idea of a functional relationship, a “power law distribution”, between the two functions of length and usage of paths through the logic of hierarchy’. Elephants could not care less. In humans, using ‘elephant paths’ means breaking with social, cultural or legislative conventions and not taking the official path. An example is the response of cyclists encountering a cycle path under construction. Cyclists quite often consider themselves flexible and adaptable, and allow themselves the freedom to ignore official signs,



including signs to the effect that 'the cycle path is under construction'. Cyclists will ignore these signs and the signs guiding them around the path under construction along an official diversion. These cyclists assume that a shorter route can be found bypassing the path under construction. Independently of each other, these cyclists will take to the grass verge along the path, cutting a convenient side route through the grass. Convenient as long as it remains dry, that is.

We will apply this example of the 'illegal', unofficial, self-organized cycle path through the grass to consider seven different situations. In each of these situations a so-called 'elephant path' appears due to agents or actors changing the status quo or responding to changing conditions. From these seven situations or scenarios, we can deduce commonalities with regard to self-organization, non-linearity and spatial planning. We construct these seven situations around the illustrative case of taking a shortcut through a grassy field from the entrance of a park to an obvious destination on the other side, for example the entrance of a school. Movement on the grass is constrained by one major spatial condition: you are not allowed to walk on the grass. The school also gets to set conditions: classes are time-bound activities which means that students will not be allowed in if they are not on time. Time therefore matters. Time is also a motive for students who will balance being late and not being allowed in, with being socially and culturally deviant by walking on the grass.

- 1 A person takes the shortcut, ignoring the 'keep off the grass' sign. He is not the only one. Others also take this route every now and then, though independently of each other. Gradually, a path emerges. The pattern now visible becomes an inviting phenomenon for increasingly many people: a self-confirming and self-referential process has started. The pattern has now become an attractor.
- 2 A person takes the shortcut, ignoring the rule to keep off the grass. By his move he inspires others (collision situation), as his act erodes the implicit reluctance of others to defy social conventions by walking on the grass. The others are assured they will not be the only ones defying these conventions, which makes it more acceptable to take the shortcut. Doing so, they speed up the process of the creation of a path.
- 3 A group gets out of the bus which stops outside the park opposite the school gate. They are late due to a traffic jam the bus got stuck in. Being a group, they easily overcome their individual reluctance to behave antisocially, as this would conflict with their more immediate desire to avoid behaving antisocial towards their group by not joining in running across the grass. The internal dynamics are strong enough to ignore the social convention to behave according to the socio-spatial conditions of the park. Obviously, this behaviour happens frequently, with group formation being the obvious consequence of having a school to go to using bus transportation.

- 4 A group encounters the official footpath blocked by repair works. They quickly interact as to what to do, and all agree it is acceptable to ignore the signs requiring them to keep off the grass. Many more, if not all others decide to do the same. Cultural rules inform them that the excuse they have is acceptable.
- 5 The 'keep off the grass' sign had been removed while the grass was being mown, and it was not replaced afterwards. As such, the explicit expression of the instruction not to walk on the grass has disappeared. This will result in a probable reduction in the desire to comply with the social convention to use the official footpath.
- 6 The park is not being maintained well. Refuse is gradually accumulating and the grass is drying out, with brown patches everywhere. A student is late and pauses before crossing it, wondering what harm it would do to walk on the grass: it could not get any worse as it is already in a terrible shape. As there is nothing to lose and at least the shortcut will achieve something positive: the student might be in time for class.
- 7 The school has decided to organize an outdoor activity due to the wonderful weather. There is limited space available around the school, so the grassy field in front of the school is used. This makes trespassing acceptable for the future as a) it is obvious the grassy field will not be ruined easily and b) the school does not mind.

All these scenarios differ in some way, and all are also quite realistic. Although students (agents or actors) are more than neutral responders, they do not behave very differently from grains in a pile. They can have a motive for their actions relating to or resulting in a structural break; however, these actions are not part of intentional collective action. Students act independently of each other. Nevertheless, they can trigger each other where these actions become visible to others. Seeing someone taking a shortcut crossing the grassy field will trigger copycat behaviour. It will make others less reluctant to breach social conventions. In Bak's experiment, the movement of one grain on the pile can trigger other grains beside it. It will speed the self-organization process. Groups of students might behave differently from a single student's, due to a complex set of competing conditions which is common in such groups. In Bak's experiment multiple grains on the move had a larger impact on their environment than a single grain. There are various conditions present, which can conflict. In Bak's experiment, friction among the grains could cause one to spring out of place, despite the downward force of gravity. In our 'elephant path' case, the students might decide to ignore space-related conditions (the prohibition against walking on grass) to get to class on time.

In abstract we could state the following: agents respond to conditions, and it does not matter much if these agents are grains in a pile (with gravity and friction as conditions) or students (responding to legal, social and cultural

**FIGURE 3.3**  
Olympic Park Beijing, China  
(Photo: Jean Hillier 2015).



conditions). The crucial point is that in the presence of multiple conditions, conditions do become negotiable at some point, with one dominating or overruling the others. In terms of self-organization, criticality is reached as a result of symmetry breaks and mismatches between conditions. This creates non-linearity and consequently additional adaptive behaviour starts. In terms of spatial planning this would mean that there is a world out there full of conditions, even conflicting conditions, which become negotiable at certain points. In Bak's experiment such negotiations are revealed among particles due to the interplay of the universal laws in physics: gravity and friction. While the laws of physics ensure that the material part of our world acts according to ascertainable and indisputable rules – nevertheless allowing moments of negotiation to occur – a social environment is held together by conventions which are hardly straightforward to ascertain and definitely not indisputable. The conventions best upheld are those clear, straightforward and univocal conditions, which are culturally and socially accepted, such as the traffic light or a health standard. Even these are negotiable in our social world. If needs be, everything is negotiable in a social world. As social conditions allow space for leverage, self-organization processes are realistic and natural phenomena in social environments. Instead of focusing strongly on content and process, spatial planning should pay attention to conditions of possibility and how these get along or mingle with each other.

## PATTERNS BEING EXISTENTIAL AND CONSEQUENTIAL

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>> Having reached this level of understanding, is there more to learn? 'Elephant paths' are widely accepted as a clear example of self-organization, including in social environments. We will not argue differently here. However, how should we regard 'elephant paths' and the seven different situations we have constructed around these paths in the light of the four phases of self-organization mentioned earlier? We have considered a 'symmetry break' to be leverage space between conventions which are present at the same time at the same place. The moment agents or actors respond to this leverage space, criticality is reached, with agents or actors displaying adjustment behaviour and adapting to a new situation in which a new set of conventions have yet to be explored. Once these are established, a new kind of stability becomes manifest. In Bak's experiment a new balance between gravity and friction is reached at the bottom of an avalanche once a new pattern becomes persistent and thus becomes conditional on its wider environment of grains in a pile. In our elephant path case a new pattern is created in the path in the grass, and a new balance in social and cultural conventions is achieved with the acceptance the path in the grass as an alternative route. In time this could even become a legalized route if the park is redesigned. However, such a change will also be the end of the leverage space students had in their struggle to be in class on time! In other words, leverage space not only allows self-organization, but flexibility too. Self-organization and flexibility are issues, which go hand-in-hand.

The 'elephant path' is clearly a manifestation of 'spontaneous pattern formation'. Spatial planners should not take this fourth phase of self-organization for granted. These 'elephant paths' are the consequence of people taking informal routes on the grass. Now consider the following question: what should be seen as the collective result of this self-organization process? Is it the 'elephant path' or is it the 'informal route'? Is the 'informal route' the same as the 'elephant path', or should we view this differently? The 'elephant path' appearing at some point in time is the physical manifestation of the 'informal route', which is present before the path becomes visible in the grass. Obviously the students have been taking the same route for some time before the path becomes apparent, and if they have seen other students taking the informal route before, there is already a mental pattern which is self-referential and functions as an attractor for others. As observers we would also have seen this route if we kept an eye on the park for a period. Depending on our method of observation, we might have observed a pattern emerging. The route represents a pattern, which is not instantly visible in the grass. Apparently, the moment an informal route comes into being and the moment the route becomes apparent in the grass are separated from each other in time. This is an issue of importance, as planners – if they are aware of an informal route emerging – might consider the consequences far before the route becomes persistent as a path in the grass. In other words, the planner might consider the positive and negative effects

of such a development in order to be able to intervene in time if the effects are considered negative.

What is relevant here is the existence of repetitive and reinforcing behaviour, which acknowledges a route by being self-referential and by acting as an attractor to others. In that sense the route is existential, and therefore has meaning. The moment this situation appears, we can consider it an existential pattern. This existential pattern is the product of a symmetry break reaching criticality, after which adjustment behaviour occurs and out of which a pattern emerges. This existing pattern affects the 'parts' (students) and has an effect on its environment (in various ways, both physically and socially).

There is a difference between agent patterning and this patterning resulting in secondary effects. The emergence of a path in the grass is in that respect a secondary, consequential result of this pattern. It is therefore the consequential pattern, with the grass disappearing and a physical path-becoming manifest. Nevertheless, it is an important contribution to the pattern, as it will substantially increase the self-referential power of the route and increase its power as an attractor. The result of the path being there physically is reinforced impact. The route will reach maximum presentation in the presence of a path. Consider a marble square instead of the grassy field. In that case, while the existential pattern would be no different from the 'grassy' situation, the consequential pattern would differ substantially; in a marble square the consequential pattern might not emerge at all, and the attractive behaviour of the informal route will be weaker. In other words, it is the primary, existential pattern and the secondary, consequential pattern, which add up to yield the spontaneous pattern formation and its self-referential and attractive powers. Being aware of the difference between both patterns could give planners leverage space to think through the possible consequences of intervening in time and to negotiate which way to do so.

There is more to say about differences between existential and consequential patterns. It is the intensity with which parts, agents or actors participate in the process of 'adjustment behaviour'. In other words, it is about the intensity of students taking the same path through the grass. At what point is it fair to say that a route comes into existence? What is the minimum number of students needed to acknowledge a route for it to exist? While there is much to say about this particular threshold (frequency, visibility, group behaviour, who is observing and by what means, etc.), we argue that the moment this route manifests its existence is when it becomes self-referential and functions as an attractor. The consequential pattern to emerge depends on a critical mass after which it is no longer possible for the grass to recover. The grass disappears and a path becomes visible. While the existential pattern is present the moment students display repetitive behaviour which amounts to the route's existence, the consequential pattern does relate to the intensity of the numbers



of people taking that route, in conjunction with the resistance of the grass to disappearing. The appearance of the path indicates a route already taken for some time and therefore strengthens it, making it persistent. The emergence of the path is not a swift transformation but a slow process. The moment a path persists – physically acknowledged by the many people who prefer it – is the moment a structural break with the social convention to take the official path can no longer be denied. It is also a moment the official rule to ‘keep off the grass’ is challenged institutionally. The path through the grass becomes a statement that the rule is no longer taken seriously, which also means the institutional power behind this rule is undermined. This structural break is not the same as the symmetry break, the additional criticality, and the adjustment behaviour out of which an ‘elephant path’ emerges. Instead, the structural break is consequential to a pattern emerging, a pattern which is sustained independently from the official footpath. However, it is reasonable to consider the idea of this sustained ‘elephant path’ being the start of another mismatch or a new symmetry break with the existing norms, conventions and routes. This could be the start of a new self-organization process and/or alterations to institutionally and culturally set conditions. How real is such a process?

The manifestation of the route through the grass relates to a combination of three interacting and mutually dependent variances responsible for pattern formation. Instead of a process, which relates to an abrupt event, self-organization can become a time-consuming process. Our brief analysis reveals variation among students and their behaviour. It also shows variation of conditions at various scales constraining and enabling these students’ behaviour. We also see a variation in the time in which the students are able to produce a pattern and in which conditions can change. The students’ desire to take the shortcut therefore varies depending on the circumstances. Aside from the structure (the grass versus the official path between the park gate and the school gate) and the function given to it (public green space to be maintained and the official route for students to come and go to school), the ‘elephant path case’ shows that agents, conditions and time do all matter somehow. All these factors colour the situation and the differences in outcomes.

The situation in our example presents the possibility of a formal path and an informal route between two nodes. The nodes are the entrance to the park and the school gate. These nodes can be regarded as a system’s environment being open, being discontinuously affected and fuzzy about what it is being affected by, with variation in the students’ behaviour due to the fuzzy responses but nevertheless resulting in clear patterns and structural change. It is the consequence of a selection process, which concerns that part of the situation, where structure (footpath and grass) and function (allowing the agent to be in time) do not match well in the eyes of the agent (actor, student or user). Here we have made an in-depth assessment of the emergence of a pattern as

a collective result of self-organization. This is done not just for the sake of argument. It is a step towards discussing the question of what makes a self-organizing process essential and relevant within a social environment. This is a slightly philosophical question, as relevance is up to the observer, and patterns emerging without any observer noticing them emerging or being influenced by them are less likely to be considered socially relevant. It is also a step towards discussing the relationship between self-organization and governance, and the idea of interfering and intervening intentionally in a spontaneous process of pattern formation.

The idea of interference is what brings us back to the idea of spatial planning. Frequently, planners have to reconsider their sets of rules, norms and conditions because the world around them has changed, again beyond their control: the world no longer being in agreement with the imposed rules.

## PLANNING: A FOCUS ON INTERVENTIONS

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>> Planning as a discipline of purposeful interventions can be conditional on self-organization processes. Setting conditions purposefully requires thinking through steps, phases, shifts and transformation deeply, as well as being aware of the non-linearity of processes and the uncertainty this brings. If we manage to accept these arguments, planning might successfully achieve agreement with self-organization processes, and as we are willing to accept them, we will progress one step further in our reasoning before bringing this contribution to an end.

We have defined four clear phases, which are all essential steps in the self-organization process. We have been able to identify various periods of phase transitions. However, such periods are fuzzy as to their beginnings and ends and their structural and functional evolution. Nevertheless, there is more to say about these periods than just their being fuzzy. Let us return once more to the park with the grassy field between the park entrance and the school, and the grass being worn away to becoming an elephant path. Aside from the well-defined phases, there remain plenty of questions unanswered here. To one we introduced some clarification: when does an informal route exist? It must be before the grass disappears, but when precisely? To clarify this fuzziness we have introduced existential and consequential patterns. Various questions remain and are as yet untouched. What about the fuzziness regarding the symmetry break? Is its cause intrinsic to the design of the park? Is it culturally accepted to take shortcuts, which would mean hardly any criticality is needed to accept the grass as a route? At which point can we acknowledge that we have reached a threshold, a critical point, after which we can expect to observe the adjustment behaviour of students crossing the grass as their shortcut. Could it be when the formal path is blocked?

People taking a shortcut do create a mismatch with current conventions. And the intensity and persistence of people taking a shortcut are criteria for criticality and pattern formation. These criteria are not fixed or constant factors representing the critical mass needed to create a visible, lasting path through the grass. In contrast to Bak's reference to abrupt events, we have to acknowledge that in social environments, self-organization could lead to gradual changes and a slow emergence of patterns. Pattern formation due to a self-organization process within social environments will occur spontaneously. However, a pattern does not always emerge instantly; it can take some time. Within a social environment, self-organization relates to a lot more than grass and class-related conditions. The whole case is by definition contextual, situational, plural and multi-level. Nevertheless, planners cannot just ignore self-organizing processes, as they can lead to undesirable and unwanted effects, which are at once very real. For example, it was the lack of action and responsiveness by the authorities in the US in the early twentieth century, which resulted in widespread urban sprawl and all kinds of negative side effects (Bruegmann 2005: 18), such as environmental spill-overs, health problems and increased risk due to traffic (Frumkin 2002). This example shows the persistence of a new pattern and its major and long lasting implications, which cannot be undone easily. Therefore, it is not strange to view self-organization in a human and social environment in the light of planning, intent and premeditation.

This brings to the front the nature-nurture, nature-artefact dichotomies and man's place in the scheme of things. In that respect, informal settlements are no doubt the result of self-organization processes, emerging on the border between the urban environment and what lies beyond. These settlements are full of actors who need each other, which means a desirable transformation from nature to nurture and from unintended settlement formation to intentional settlement development. A sewer system, taps for drinking water, electricity and so forth are substantial steps forward for settlements and their communities. All of these steps are hardly feasible if a collective is unwilling to organize an interest in achieving them. This means self-management processes will take over or will be followed by self-organization processes, and more structural self-regulatory systems and shared governance could evolve quickly as well (see Figure 3.1). Old Fadama, an informal settlement in the capital of Ghana, displays this evolutionary path (Marshall Nunbogu 2014). The example of informal settlements makes us aware of self-organization as a possible stepping-stone towards institutionalization. Barros and Sobreira (2002) present a simulation project, based on agents walking randomly across a cellular space, constrained by attractive and non-attractive boundaries, within which settlements develop in a self-organizing way, starting from 'attractors' such as existing routes, access to transport, access to water and so on. 'Agent rules' model the behaviour of people looking for attractive urban sites to settle. This is no different from

organic development, which was common in cities in the Middle Ages, as Mumford (1961: 302) describes: 'Organic planning does not begin with a preconceived goal: it moves from need to need, from opportunity to opportunity, in a series of adaptations that become increasingly coherent and purposeful, so that they generate a complex, final design, hardly less unified than a preformed geometric pattern'.

Our interest is not just about 'form' reshaping itself as a pattern, it is neither about 'inform' between an object, its parts and their context at a moment when readjustment is desired. Instead, it is about being 'pre-informed' about likely change due to self-organization, through which strategic behaviour and responses emerge. It is about understanding self-organization processes in a social environment as 'unintended behaviour resulting spontaneous in collective result which becomes manifest in a spatial pattern emerging'. In other words, while there is no intent a priori in the individual to create a pattern or to contribute to a collective result, we are aware of the possibility and we understand the cause of such an event.

Even if we are 'pre-informed' about self-organization processes, such processes also include a period of non-identity. In Bak's case of the grain pile, the avalanche is triggered and is in the process of sliding but has not yet reached the stage of a pattern formation. Loepfe (2014) calls this a period of non-identity. In Bak's case gravity will make sure the sliding grains will settle somehow, probably as a pattern. This period of turbulence (see Bénard cells) or non-identity might not be that relevant as a purely physical phenomenon, but as phenomena in social environments they could be very relevant. Remember the 'shared space' policy, which is about taking away generic traffic rules to trigger spontaneous encounters between agents who are used to following traffic rules. While suddenly being confronted with other users in a 'shared space' environment, agents might confront a period of utter chaos. This will or might result in a new pattern, but this will take time. In the short interactions, which are the consequence of a 'shared space' environment, there might not be enough time available for sustainable patterns to emerge. However, such patterns can emerge, attracting the individual agent as a welcoming route through the chaos, allowing it to cross safely and eventually return to a space conditioned by generic traffic rules. Nevertheless, the period of non-identity and the turbulence and chaos is what the policy is aiming for, to make agents aware of each other and thereby reduce accidents. We could say we are dealing here with a kind of 'induced self-organization': intentional initiatives creating conditions under which self-organization is expected. More than the grassy field or the informal settlement examples, shared space relates to a governance structure in which purposeful rules are withdrawn to manipulate our actions, to achieve a better structural and functional result.

Zhang et al. (2015, 2016) show the self-organizing and unintended effect of a policy measure implemented by the Beijing authorities. The policy measure constrains the possibility of purchasing property in central Beijing to one house per family, as a countermeasure to a possible real estate bubble. Real estate companies responded to this policy by moving out of the central area, instead developing residential areas at the periphery of Beijing. The policy measures created a mismatch with existing practices, and quickly reached a critical point after which the real estate companies – one after the other – responded by moving out, creating a new and unintended pattern of housing developments. While these areas are more luxurious and therefore attract families who do not mind travelling long distances to give themselves access to more liveable homes, the countermeasure the authorities envisaged did not achieve the effect hoped for. It merely dispersed the problem more widely.

This brings into the story the idea of policy mechanisms, which could be self-correcting or could avoid overreactions. In the discipline of biology there is a field of research, which could also become relevant to the field of Planning. Excesses are rare within biological arena. For example each time our immune system is activated to protect us against danger from outside a counter mechanism is activated to prevent our body from overreacting. Such mechanisms could be copied into our institutional world, becoming part of the strategies of transition management. These could be added to the knowledge we have about constraining and enabling factors conditioning the self-organization process, and could contribute to our knowledge about interference and interventions. In other words, a new kind of science is under exploration in self-organization processes: there is more to come.

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## SYNOPSIS

>> Institutional design and governance are issues which planners consider their natural habitat. This seems quite a paradox in the case of self-organization processes and statements about self-organization processes supporting urban development, spatial change and social transformation. Planning is the science of purposeful intervention. Self-organization is a phenomenon, which is central in the theory of spontaneous order. We could say ‘fire and water’, either one or the other, as both seem mutually exclusive.

Here our aim is better to understand these type of interactions, their results and the conditions under which these results emerge, intentionally or not, to allow planners and planning actions to make use of this knowledge in support of wider strategies which allow reality to evolve autonomously while simultaneously being aware of the conditions under which evolving processes occur and the consequences to which these evolving processes might lead. And

this is what we are stressing in this discussion – while this might seem true with regard to content and process, it might be seen differently when focusing on conditions. If we consider planning not so much as an exercise of creation (comparable with architecture), but as an exercise, which sets boundaries to developments (the height of a building, the maximum size of a neighbourhood, environmental standards and so on), it would allow people to move freely within these boundaries. In other words, self-organization processes will respond to attractors, and boundaries set by planners can be such attractors. Planners can consider interfering if such processes of movement within boundaries show undesirable outcomes.

This means that instead of being mutually exclusive there could very well be a healthy interdependence between purposeful interventions and the emergence of spontaneous order due to self-organization processes. In this contribution we interpreted the four steps of self-organization, in abstract spaces and within fuzzy social environments. To some extent we will be able to recognize these steps, construct an opinion about what these steps mean when being confronted with them in practice, and we might consider intervening... or to let it go, and to go along with it, possibly even to support such processes and perhaps even initiate self-organization processes ourselves, purposefully creating symmetry breaks. Although the last option mentioned does come with a risk, as we are very much aware this will include non-linear processes and processes which lack identity, and the uncertainty of results which accompany that.

We are now able to answer the question which excites planning theorists with an interest in non-linearity: can planners understand and influence self-organization processes despite these processes being non-linear in character and autonomous in their behaviour? This assumption might seem a contradiction in terms. Here we argue that planners are able to relate to self-organization, are able to understand its processes, and are to some extent 'pre-informed' and able to negotiate about interfering, leaving it as it is, and even supporting its path or perhaps triggering such processes to the benefit of us all.

In this contribution we have taken a careful look at the origins, drivers and conditions of self-organization. Its essence is to be found in the spontaneous adjustments or rearrangements after a symmetry break. This symmetry break can be structural, a mismatch between structure and function or a conditional change. The result of such an adjustment after a symmetry break can be spontaneous pattern formation. If so, it can be addressed as a self-organizing process. The emergence of such a spontaneous pattern can come and go without consequences. It could also be the first link in a chain of events through which structure and function co-evolve. A fundamental transformation could be the result, achieving a stable state of affairs. Self-organization could be the first step through a door into a new, unknown world full of opportunities. This is where the relevance of self-organization to social systemic environments lies: in initiating change.



In planning self-organization and pattern formation, initiating change requires the recognition of symmetry breaks and understanding their consequences. Planners can consider taking these spontaneous effects into consideration. They could even consider creating conditions for a system to be ready for change. These interferences are to some extent desirable, to prevent 'a tragedy of the commons' from occurring. Such policies to make use of spontaneous, autonomous processes and benefit from adjustment mechanisms in response to symmetry breaks are in a way contrary to self-organization, as a process happening without external control. Self-organization cannot be internally controlled, hence the need and the possible desire to influence the process through conditioning the system and the process of change. Resulting in the varying degrees to which symmetry breaks and adjustment mechanisms, which evolve due to a rise in tensions, are made use of. Instead of solely controlling reality as it 'is', or acting on the basis of agreements and consensus, we argue that planners could also use spontaneous mechanisms of self-organization, including symmetry breaks and mismatches, causing tensions in society from which adjustment behaviour follows without intention but nevertheless resulting in new, sometimes surprising patterns which emerge spontaneously. In other words, planners could enhance their commitment to the built environment, also further enabling change to happen, not just in accordance with a controlled and predefined plan but also in a 'natural', uncontrolled way. <<







# >> Evolutionary Governance Theory and the Adaptive Capacity of the Dutch Planning System

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## INTRODUCTION: RAPID CHANGES, SLOW TRANSITIONS

>> In this contribution we explore the pathways of the Dutch planning system and its potential to adapt to a continuously changing society. It presents a possible answer to the question that frames this book: 'How can researchers and practitioners incorporate new insights about complexity and non-linearity into their work and develop new strategies and tools that can be used to engage planning in the processes of coevolution'. We will argue that answering these questions demand a thorough understanding of the governance structures and the social processes of adaptation and coevolution in which planning is embedded. It requires insight in how planners and planning systems can perform roles within a world that is unpredictable, and in which interventions do not necessarily have the anticipated effects.

De Roo and Boelens have argued that planning is in need of a framework that goes beyond a rational-scientific model of centralist planning, or versions of communicative and collaborative planning that relied on communication absent of power, in which the most rational or best argument would lead to consensus (De Roo and Boelens 2014). Evolutionary Governance Theory (EGT) offers such a perspective (Van Assche et al. 2014). The theory presents a middle ground between social engineering and neo-classical economics, and its free market ideals. It links up with complexity theory, as well as other theories that include notions of complexity, uncertainty and non-linearity. We use EGT to analyse the evolution of planning perspectives in the Netherlands and the way in which these delineate a certain space for planning in society and shape the potential impact of planning to guide spatial transformations.

Within EGT planning is broadly defined as the coordination of policies and practices affecting spatial organization (Van Assche and Verschraegen 2008). This definition enables us to look at a wide variety of planning practices and aspirations in a society. Planning is part of governance. Each society or community has its own planning system, characterised by a specific pattern of organizations, formal and informal institutions and discourses. The position of planning in society is shaped in a dialectal relationship with that society. In other words, a planning system should be seen as a temporary outcome of the evolution of that society and its governance structures and elements. In accordance with the huge diversity in ways in which states, administrations and communities are organised and governed, planning exists in many variations, in many shapes and forms (Mandelbaum et al. 1996, Allmendinger 2002). Planning can be more or less associated with the nation state, with scientific expertise, with certain roles for planners, designers and plans at different levels of government. It can be more procedural at one place or content driven in another, and be more or less dominated by political, economic or legal actors. This explains why in some communities planning is embraced as a system that can bring public goods and facilitate the implementation and integration of spatial policies, while elsewhere it is conceptualised as the undesired

intervention of governments in people's life and a limitation to free markets (Assche and Leinfelder 2008).

An evolutionary perspective on planning implies that a planning system is always changing. Since communities evolve, governance evolves and so does planning. The Netherlands presents an interesting example to illustrate and understand this evolution. Planning traditionally had a strong position within the Dutch state, but in recent years this position has become subject of debate (Van Assche et al. 2012). Under influence of wider changes in society, like the reduction of financial means to plan and implement spatial interventions, the bastion is slowly eroding and the planning organisations see their influence decreasing. In various policy domains the previously dominant planning perspectives and practices become challenged and contested. Well-known examples are land policy, urban and regional development, climate change adaptation, and nature conservation (Roodbol-Mekkes et al. 2012, Savani 2012, Roth and Warner 2007; Van Dijk and Van der Wulp 2011, Beunen et al. 2013b; Wolsink 2010, Duineveld and Van Assche 2011). Planning is often considered to face a crisis and the difficulties of the planning system in adapting to 'the new reality' are object of many discussions.

This contribution adds to these discussions by conceptualising the adaptive capacity of the planning system as the possibility for existing perspectives on planning to evolve and for new perspectives to emerge and to gain influence. We focus in particular on the path, inter and goal dependency of planning perspectives. We conclude that the acceptance of complexity and non-linearity demand a planning system that embraces and enhances reflexivity and flexibility as important prerequisites for adaptation and innovation.

## TOWARDS AN EVOLUTIONARY PERSPECTIVE ON PLANNING

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>> We will introduce evolutionary governance theory (EGT) as a theory emphasising the contingent, evolutionary and self-referential character of governance. We describe the power of planning and planning perspectives and outline three concepts for understanding the co-evolutions of roles and perspectives in planning: path dependency, inter dependency and goal dependency.

### Contingency, evolution and self-reference

EGT understands governance as radically evolutionary: all elements of governance are subject to evolution, all these elements and their dependencies coevolve, and many of them are the product of governance itself (Van Assche et al. 2014). In line with social systems theory as developed by Niklas Luhmann, it pays particular attention to social systems as observers that constitute society. Luhmann identified neither people nor actions as the elements of a theory of

society, but communications (Luhmann 1989). Social systems are on-going processes of interpretation and reinterpretation of internal communications and external environments. They are self-referential and govern the processes of their transformation through communications (Teubner 1989). Every communication and every observation or interpretation is a contingent construct of the observer (Luhmann 2012, Fuchs 2001). Environments are always interpreted in and by the social system. Each object, subject, action or narrative, is observed and interpreted according to the systems schemes of interpretation. These schemes are themselves a product of evolution. Each social system produces an image of itself and the outside world in terms of its own unique basic distinctions, concepts and procedures (Teubner 1989).

For Luhmann there are three kinds of social systems: 1) interactions (conversations), fleeting systems with a limited capacity to process environmental complexity, 2) organizations, social systems with clear boundaries reproducing themselves by means of decisions, and 3) function systems, systems that are not delineated by membership, but by the specificity of their perspective. Law, economy, politics, religion, science and education are examples of function systems that each play a role in the reproduction of society as the encompassing social system.

Within EGT social systems theory is compatible with a version of discourse theory, largely in line with the Foucaultian tradition (Foucault 1994, Foucault 1972). Both social systems theory and discourse theory offer a framework to analyse the communicative processes that shape historically contingent discourses that produce the criteria for their own transformation (Luhmann 1995; Luhmann 2004; Teubner 1988). The consequence of the constructivist nature of EGT is that objects, facts, rules, subjects, ideas and so on, are constructed within a social system or a discourse. People, as individuals, exist in two ways: they are subjects, constituted in the observations of social systems, but they are also present in the environment of social systems, as psychic systems able to process meaning (Van Assche et al. 2014). People (as psychic systems) and social systems co-evolved as each other's necessary environments. In evolutionary terms: the actions, decisions and communications of people and the strategies of actors create variations and selections that contribute to the evolution of structures and patterns in governance.

Structures appear in a process of emergence, of recursive repetition. Structures, such as configurations of actors and institutions, appear and disappear and are part of an emergent order that is immanent, but at the same time perfectly capable of constraining the internal and external linkages that make up actors in a governance network (Hillier 2008, Da Landa 2006). Actor/ institution configurations can shape the functioning of actors and institutions, without the need to assume a pre-existing design or structure imposed from somewhere else. The configurations emerge out of the operations of the system do not need

an explanation invoking an outside of or prior to the system. Yet their coming into existence changes the logic of governance, its complexity and its potential impact on society. Actors on their turn will transform in governance, as a result of the manner in which they are coordinated and the manner in which they coordinate (cf. Hacking 1999, Van Assche et al. 2011b). The continuous confrontation with others, their strategies and ideas, in the production of policies, plans and laws will inevitably change an actor. Redefined actors will handle institutions differently and participate differently in the production of new institutions, introducing shifts in the institutional configuration, which then likely pressures actors into a new phase of reinvention.

EGT on the power of planning and planning perspectives

In order to explore the possibilities for a proactive co-evolutionary planning, we analyse the embedding of particular planning perspectives in the organisations and institutions of Dutch planning. We define a planning perspective as a coherent narrative on how socio-spatial realities are perceived and evaluated and how these should be governed. It includes ideas about which issues are relevant, about the approaches, strategies and institutions that are important and about the roles for particular actors, often including a certain view on the relation between state, market and civil society. Such perspectives can also be referred to as paradigms or doctrines. They vary between places and in time (Allmendinger 2002). Planning perspectives can be conceptualised as self-referential discourses, in the sense that they construct the world by means of references to their own elements, and in the sense that new structures are always grounded in prior ones (Teubner 1989). Planning perspectives are not just description of an existing or desired reality, but discursive structures that contribute to the construction of that reality. These perspectives can become productive if they are translated into organisations and institutions that make the planning system function according to the perspective (Beunen et al. 2013b; Van Dijk 2011). Planning perspectives are in a dialectical relation with disciplines and professions. Certain actors identify with certain perspectives and use these identifications to maintain or improve their position versus other actors in the system (See e.g. Hoch 1992, but also Friedmann 2008). Every planning system needs certain perspectives, particular images of the outside world (the environment) to operate on, as well as tools to implement decisions, plans, and policies in that outside world. Complexity theory (e.g. Innes and Booher 2010, De Roo and Silva 2010) and social systems theory (e.g. Van Assche and Verschraegen 2008) argue that the reduction of complexity within the planning system enables it to reproduce itself and to interact with society at large, at the same time obscures many features of that reality. Within that context, power relations define not only the strategic interactions between actors, but also between the planning perspectives (Hillier 2002). If a planning system, as a network of particular perspectives, faces difficulties to adapt, it becomes more isolated from the rest of society. The difference between



realities, problems and solutions defined within planning, will over time tend to diverge from the perspectives elsewhere in society. This is likely to reduce the effectiveness of planning intervention (Wildavsky 1979) or they are more likely to be experienced as oppressive (Van Assche and Verschraegen 2008).

Within the planning system the relative position of actors and perspectives versus each other is always shifting. Different players will crystallize, which in turn shape the future interactions in and of the planning system (Van Assche 2010). Once in place, a configuration of actors and perspectives tends to reproduce itself (Seidl 2005, cf. Luhmann 1995). The planning system is therefore marked by strong path dependencies (Chettiparamb 2006, Van Assche et al. 2011a). It is a contingent configuration of different disciplines and professions, such as strategic planning, landscape architecture, architecture and urban design. The existing configuration and its dynamics are reflected in, and sometimes influenced by, the academic debates about planning, where certain forms of planning are criticized and alternatives are promoted (De Roo and Silva 2010, Gunder 2011, Childs 2010, Madanipour 2006). These debates for example focus on desired and undesired social and environmental effects of planning interventions, on the relation between science and practice, and on the specific form and position of planning in a society.

#### EGT: three dependencies and the evolution of the planning system

To understand the evolution of planning systems, we need to understand the dependencies that enable and constrain this evolution. We distinguish path dependence, interdependence and goal dependence (Van Assche et al. 2014, cf. North 2005, Callon 1991). Path dependence widely refers to numerous legacies from the past influencing governance evolution. The presence of certain actors and their perspectives, the presence of formal and informal institutions, such as plans and policies, and the particular dialectics between actors and institutions and between formal and informal institutions can all be seen as path dependencies that shape the course of governance.

Interdependence refers to the relation between actors in a planning system and the configuration of actors and institutions that evolves over time. It is relevant for actors in strategizing towards their own goals, and in furthering common goals. At a larger scale, the coupling between function systems adds a layer of interdependence in governance. The role of planning is co-determined by the pattern of structural couplings between function systems. If, for example, politics and law are not fully differentiated, then resorting to the courts in case certain political actors break the law in their political strategizing, is not a useful step. If markets are very free and citizens are seen first of all as bearers of property rights, local governance will be less likely to come up with spatial plans (as new formal institution) to further certain common goods. If local laws are easily shot down by regional courts, then local governance can develop in the direction of formal passivity and increasing reliance on informal coordination.

Goal dependence is dependence on the influence of shared visions or plans on changes in the actor/ institution configuration (cf. Van Dijk 2011). It does not mean that the future determines the present, but rather that certain visions and expectations of the future, and their presence in the discursive worlds of actors and the community at large, crystallised in formal and informal institutions, have real effects. The evolution of actor/ institution configurations in many communities can hardly be explained without mentioning the influence of visions, from concrete plans to the vaguest of hopes. Especially within planning, where certain vision of the future are formed and translated into policies, these visions tend to have significant influence on the evolution of that planning system.

The combined effects of these different dependencies create rigidities for the evolution of the planning system. Yet the interplay between the different dependencies also creates flexibility. The interdependence between actors in many cases implies interdependence between organizations, with individuals representing organizations. Since these organisations are not fully transparent to each other, there will be a difference between actual and perceived interdependence, and between the perceptions of interdependence on different sides. Path dependence is generally even more elusive for the actors themselves, as it involves images of the past, images that are necessarily constructed in the present. Many actors will not be aware of structural path dependencies, and if so, they will, in asserting their autonomy towards them, operate on the basis of imperfect images of self and past. Actions inspired by interpretations of path dependency are therefore likely to have unanticipated effects which, in turn, modify the pattern of path dependence. Regarding goal dependence, one can say that the unanticipated effects here are most significant, since one deals with images of futures that are utterly unknowable. Steering attempts to bring a particular future closer are, in a systems perspective, bound to hit the wall of other self-referential systems, opaque and unwilling to be steered. Visions, plans, policies are likely to have effects insofar as existing actors incorporate them in their future interactions, yet no event is foreseeable in the present (cf. Da Landa 2006, Deleuze 1988).

### The evolving planning system

Within an EGT perspective a planning system can be conceptualised as an evolving configuration of actors, institutions and perspectives that coordinates the practices and policies affecting spatial organisation. A planning system is embedded in and co-evolves with the configuration found in the wider society. Within many countries, and in particular those in western-Europe, there is a widely shared consensus that a certain form of planning, that is a certain form of spatial coordination, is required in order to deal with socio-environmental challenges, such as urban and regional development, the conservation of natural and cultural heritage and the improvement of quality of live (Fischler 1998). The form of coordination can be diverse and includes a wide range of

concepts, strategies and instruments for analysing and designing intervention. The toolbox of planning includes scenarios, visions, plans, laws and other legal institutions, and the people and organisations that can put these into practice. A society can consider a certain form of planning effective and legitimate and criticise and delimit other forms. Disappointments with planning, failed projects, or contested plans might trigger the planning perspectives in a society to diverge from these in the planning system and require the planning system to adapt itself to new societal wishes (Hajer and Zonneveld 2000). A planning system should therefore continuously reflect on its positionality in society, assess its potential and perceived impact and legitimacy, and it should have the capacity to adapt itself to changing circumstances.

## PLANNING PERSPECTIVES IN THE SAFE HAVEN OF DUTCH SOCIAL DEMOCRACY

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>> Planning in the Netherlands has often been framed as a success story. This framing is firmly rooted in the mythical reputation that has been formed over the years (e.g. Hajer and Zonneveld 2000, Geurs et al. 2003, Wolsink 2003, Needham 2000, Priemus 1996, Alexander 1988). This success story was strengthened by narratives about the beautiful and rational order of the Dutch landscape, the result of large scale lands consolidation projects and the Delta works, well-coordinated by different administrations operating on different levels and scales, in close cooperation with research institutes, universities and advisory bodies. For a long time the dominant discourse of success reduced the space for alternative stories or different description of planning but more recently there seems to be more fertile ground for these alternatives. Within Dutch society, facing a financial crisis and related social problems, planning is regularly criticised and no longer taken for granted. In this section we present a few snapshots of different domains of the Dutch planning system to analyse the dominant planning perspective behind the stories of success and its relation to alternative descriptions. They uncover some of the underlying assumptions of this perspective and the ways in which these have been reproduced over time.

### Urban development

Urban development is one of the domains of Dutch planning that is currently facing difficult times (Janssen-Jansen 2010). House prices are under pressure, many housing projects are cancelled or proclaimed a failure, and numerous municipalities face huge debts because the risky projects in which they got involved and the unequal distribution of risks and benefits in the agreements that they signed with private parties. The traditional model for local area development projects was based upon the assumption that public goods could be funded by the profits made by building and selling houses and offices. Often the development took place in close cooperation between public organisations

and project developers. The authorities played a double role in the development practices. On the one hand they decided on the places where new developments were allowed, while at the same time they were one of the developing parties, aiming at a financial gain from the changes in zoning plans and the developments that followed. Due to the high prizes for real estate, changing agricultural land into urban areas was highly profitable. So profitable that many actors lost sight on the risks. Over the years it had become common practice for municipalities to buy (agricultural) lands for urban development. Currently many municipalities are the owners of empty land of which the value is much lower than the prize they once paid and do they face high rents on the loans that they took to pay that prize.

Once renowned for its progressive and innovative approach, it has now become clear for more players, that the growth-based paradigm, on which urban development draws, is anything but sustainable. Although the model has brought prosperity for speculators, developers, consultant, architects, and building companies, and governments certainly took their part, it also came with high costs. Many investments are unlikely to produce the expected profits and someone has to pay for the depths. Not surprisingly various projects are criticised because of their high costs and because the lack of stakeholder involvement. Also the landscape paid its share through gradual sprawl and the rise of offices and business parks in the once so celebrated open areas. Governments lost their control over this profitable money making machine. The success created many blind spots for which the bill has to be paid by the generations to come.

The Dutch urban development model has created strong interdependencies between the actors, and institutional configurations. These are geared towards particular kinds of public-private cooperation in urban development, with specific roles for authorities and a limited number of market parties. An interesting example is the land development department ('grondbedrijf', in Dutch) that many municipalities have put in place to facilitate planning and to enhance value capturing. Furthermore there is a whole set of laws that are put in place to strengthen municipalities in their negotiations with developers, such as the pre-emption right act which should facilitate municipalities in their role of acquiring land on future building sites and implement their housing policy (Van Dijk and Beunen 2009). Market parties have co-evolved with this system and are specified to work in this context. The particular interdependence between the main actors and the relevant institutions has created a path dependency that influences many current debates about the reorganisation of urban development and reduces the possibilities to develop alternative approaches. New initiatives, for example, regularly clash with legal rules. Small entrepreneurs or citizens who like to build their own house face difficulties in obtaining all the required permits. This in return creates frustrations, which in current times attracts more attention than before, exactly because the old

‘machine’ stopped running. It creates room for new narratives to be told and spread, and these in return created tensions between these new perspectives and the ones institutionalised in the planning system.

### ‘Krachtwijken’

If we zoom in on the urban areas we find a related policy domain in which planning played a prominent role: neighbourhood development. Within this field, planning, in the form of social and spatial interventions is considered an important tool to deal with social problems such as unemployment, crime, vandalism, littering, and safety. This policy domain has a long tradition (Van der Woud 2010). We reflect on the recent development within this policy domain, with particular attention for the Action Plan for Empowered Neighbourhoods (‘Krachtwijken’, in Dutch) (VROM 2007). This action plan aimed to improve the 40 most deteriorated neighbourhoods in the Netherlands. These neighbourhoods were selected and financial resources were provided to develop and implement social and physical interventions. The involvement of various stakeholders and in particular the local residents, was considered essential for the success of the policy, as this would allow an area-based approach taking into account the problems definitions in its specific context. A recent study that evaluated the effects of the Action Plan by comparing the empowered neighbourhoods with reference neighbourhoods concluded: ‘the policy did not have a distinctive positive impact on liveability and social safety’ (Permentier et al. 2013: 124).

Within the Neighbourhood policy, planning is considered a necessary and efficient tool to tackle the societal problems that policy makers and their advisors can define. There is a strong believe in the fact that the neighbourhoods and their residents can be known, that problems can be unambiguously delineated, and that the whole system can be steered into a certain direction via specific social and spatial interventions. Such knowing, however implicitly means that the socio-spatial complexity of the neighbourhoods is reduced to a number of indicators that can be measured. It also assumes a direct relation between problem definition, the design of solutions and their implementation. This is reflected not only in the way the policy is formulated, but also in the way it is evaluated. The evaluation is based upon statistical analysis assuming a linear correlation between policy and social indicators. Such approach tends to ignore that a statistical relationship is not the same as causality. Although it might indicate that certain things have changed in the particular neighbours, it lacks insight in the actual complexity of the interrelations between policy and social indicators.

This example shows that and how the institutionalisation of a planning perspective that systematically overestimates the possibilities to know social environments and to steer these into a certain direction, hampers analysis and implementation. New initiatives are framed and evaluated from this dominant planning perspective. The case highlights an important aspect of the Dutch

planning perspective: a strong focus on measurability, checks and balances, and means to control, which in return create frustration amongst some of the actors that observed many of the expectations and promises were not met. Here too strong interdependencies between actors and between actors and institutions maintain a system in which the perspective embedded in certain organisations largely influences what others can do and how their efforts will be perceived and evaluated. In addition a strong goal dependence, the ideal of a safe and social neighbourhood, obscures socio-spatial analysis and the understanding of the actual situation and therewith the search for suitable approaches (Cf. Easterly).

### Nature conservation

Nature conservation is another Dutch policy domain in which planning and its dominant perspective is firmly embedded. Planning became relevant in the late eighties of the previous century when the focus of nature conservation policies shifted from a protective towards a more offensive approach. The national policy document from 1990 consolidated this shift. The main objective of this policy was the realisation of an ecological network (EHS) by enlarging existing areas, creating new nature areas and linking them through ecological corridors. The policy document presents large-scale spatial transformations that demanded a certain form of planning in which different goals and their spatial impacts were integrated.

The ambition for nature development was picked up by numerous actors who started to design new nature areas and ecological corridors (Beunen and Hagens 2009). It was embedded in various plans and policy documents at different levels. Many of these plans had a comprehensive character and took into account the relation with different policy objectives and other land use activities (Beunen en Van Ark). Well-known examples are the integration of flood protection measures, sand and clay extraction, nature conservation, and tourism in comprehensive plans for the development of flood plains. Over the years the policy domain attracted more and more criticism for its top-down and technocratic approach, the lack of stakeholder involvement, and the high costs of buying, developing and managing nature areas (Rientjes 2002, Aarts 1998). More recently the implementation of the EU Birds and Habitats directives reinforced tensions between the different stakeholders and many of the critics that were presented earlier on (Beunen et al. 2013b).

In the field of nature conservation various path, inter, and goal dependencies can be observed. Path dependence is visible in the strong position of certain players that refuse to give up their position, the on-going influence of their perspective and the way this influences decision-making processes and the use of certain approaches. It is for example visible in participatory processes, in which the influence of certain stakeholders is limited because their perspective is too different from the perspective of the main organisations working on nature conservation. This creates frustration with the process and the wider policy and reduced the possibilities to find solutions. In a more general sense,



the strong focus on conservation objectives and targets can be seen as a goal dependency that in many debates frustrate the introduction of other concepts and uses of nature.

### Co-evolving and conflicting perspectives

The presented snapshots indicate that much of the critics that planning is facing, relates to conflicting planning perspectives and approaches. Within society the effectiveness and legitimacy of traditional planning approaches and the perspectives upon which these are based, are regularly questioned. These perspectives, however are strongly embedded in organisations and institutions, and therewith form strong dependencies which limit the adaptation of the planning system to the changing environment. Many of the critics have been presented in policy documents, scientific articles and in popular media. They illustrate the growing dissatisfaction with the way planning is currently organised. A growing number of people consider the planning system to be ineffective, inflexible, and very costly. These critics strongly relate to dominant expectations and assumptions that are embedded in the planning perspective that is strongly institutionalised in the Netherlands:

- Planning in the Netherlands is generally taken for granted. The need for planning is rarely questioned. Over the years and in response to societal changes more planning was needed, better planning, a different planning, but rarely less planning or less involvement of planners.
- Planning is based on a strong belief in the steering capacities of the state. Failed policies and plans and unwanted spatial developments have rarely been related to the functioning of the planning system, but mostly attributed to other factors. Despite the more recent disappointments in the planning system, this belief is still present in many of the planning organisations.
- The role of the planner within this perspective was a clearly delineated one. Planners were seen as persons able to understand the problem, integrate perspectives and provide the best solution.
- The former expectations and assumption are strongly linked to a modernist belief in a scientifically prescribed ideal spatial organization that still pervades both government and academia. This ideal inspires the thought that deviation from the present system, which is supposed to bring us as close as possible to that organization, can only bring chaos.

These assumptions are often still silently present in policies and practices. Recently these have become more overt, due to a series of critiques and the reduced availability of financial resources, showing the limitation of a planning model largely based on (economic) growth. Due to these developments the success stories scientist no longer easily upholds the dominant planning perspective (Van Assche et al. 2012). Dutch television programs like 'Landroof', 'Tegenlicht' and 'De slag om Nederland', and newspaper articles put forward another perspective. They present stories of unwanted developments

relentlessly lobbied by obstinate politicians, or on many cases of failed projects, and financial problems.

In addition to these critics, it has become clear that upholding an extensive planning system costs a lot of money, including fees for consultants, assessments reports, and processes costs that are made to lubricate decision-making. In the Netherlands the price of land and homes has been increased by the scarcity created by the planning system (Tijdelijke Commissie Huizenprijzen 2013), while signals that too much is being built are not felt quickly enough. Moreover, the access to land by potential homeowners and by small construction companies is extremely limited, reducing market competition, product diversity and democratic controls.

In the international academic literature, planning perspectives, including the dominant Dutch perspective, were already critiqued earlier on. The legitimacy of planning and planners was questioned, their power and the role of their expertise, escaping democratic control (Gunder 2010). Also the limits of steering and control, and the lack of realism in policies and plans were highlighted back in the sixties and seventies (Friedmann 1973, Wildavsky 1979, Boyce 1963, Jacobs 1961). The grand narratives of planners were criticized for their claims to a single truth, the possibilities of a rational planning and the veiling of the political and normative character of politics and planning (Scott 1998). In line with these critics, the dominant Dutch planning perspective has been criticized for its lack of democratic legitimacy. One could think of the limited role citizens and civil society's wishes played, the importance given to scientific expertise and thereby depoliticising planning practice. Also the 'rational' geometry, the repetitive aesthetics of many post-war developments that were imposed upon residents, and the relatively high costs of the planning system, compared to neighbouring countries, were questioned (Van Assche 2004). In addition management studies showed that steering power have been systematically overestimated, with a lack of reflexive insight in power relations as one of the main reasons (Seidl 2005, Czarniawska-Joerges 2008). The idea that planners can know, either in advance or during the process, what is good for a community or what is the best procedure to get there is a trace of a modernist configuration of power. A configuration whereby planners silently take the role of the king, the position that enables overview, a unified perspective that can define the place of everything (Pottage 2004, Luhmann 1990, Scott 1998).

## A CHANGING ENVIRONMENT AND SELF-REFERENTIAL RESPONSES

>> Despite the critical literatures, already emerging in the sixties and seventies of the last century, the dominant planning perspective got widely institutionalised in public and private planning organisations, policies, procedures and formal and informal institutions. This institutionalisation certainly had its advantages for the planning system. The repeated performances of success made the

planning system more successful in terms of capital flows and numbers and sizes of organisations and in possibilities to guide spatial transformations (cf. Rap 2006). Faced with a rapidly changing socio-economic environment this stabilisation does however possess several disadvantages. This section elaborates on some underlying assumptions and power relations in the dominant planning perspective that hamper adaptation of the planning system.

### No urgency

Luhmann's famous assertion is that planning is only possible if people are used to being planned (Luhmann 1997: 41). He might have had the Netherlands in mind when he wrote this. The notion of social democratic planning, planning and development by the government for the citizens, was widely accepted for most of the post war period. It was generally accepted that there was a housing shortage, that the wet conditions of much of the country were difficult for development, and that substantial government coordination, steering and control were necessary for rapid, yet safe and balanced development (Van Assche et al. 2012). With this, came a deep belief in the power of experts, and the necessity of the chosen system of organization (cf. Fischer 2000). Even among those critical of the government and its planning procedures, the belief that things could be organized differently, that e.g. quota for public green space, parking space and retail might deserve rethinking, was not widely held (Van Assche 2004). This acceptance of the success story in academic circles and beyond became codified, naturalised and reinforced within the planning system. It became therefore increasingly difficult to observe that both spatial organization and the governance system affecting spatial organization are contingent, could have been organized differently. The fact that planning increasingly was taken for granted is, we believe, one of the major obstacles for the planning system to adapt to the changing environment.

### Reduced spaces for learning

The organisations that constitute the Dutch planning system consist of governmental organisations, consultants and engineering companies, advisory boards, universities and other often more applied research centres. In the post war period the symbiosis between planning organizations, academia and private actors increased. This symbiosis was, and still is, visible in funding streams for research, in which relevant topics and questions are framed in terms of the current system. Academics are praised for their close relations with government and private firms, a relation that is framed as knowing the 'real' world of current practice (Duineveld 2008). As a consequence the roles of various actors become blurred and the differences between their perspectives are reduced.

For EGT, differences in perspective generate productive conflict, checks and balances, and the promise of refined adjustment to changing circumstances. In other words the presence of different perspectives in the environment of a social system can trigger the existing perspective in that social system and therewith

foster new reflections, learning and adaptation to the environment. Close ties between organisations and a strong convergence of perspectives and interests jeopardizes this adaptive capacity. It makes the planning system more rigid in its observations and responses. In the evolution of the Dutch planning system, the semantics gradually emerged as shared conceptual frames, enabling the closeness of the actors, fitting the shared social democratic and technocratic ideology. Once the internally shared narrative on Dutch planning had emerged, it had to be presented as a success, because of its interwoven assumptions. The performance of success could be successful because of the tightly coupled network of organizations that all shared the same perspective. At the same time however, internal critiques, corrections, and competition were reduced, and therewith the spaces for learning, for introducing new perspectives.

### Fear of conflict

The famous tradition of 'polderen', the tradition to include 'all' players in a conversation and find a consensus, can be seen as enforcing some of the problems mentioned before. While one cannot generalize and claim that consensus is bad, it becomes problematic when one assumes that it is always possible, that consensus is good, and conflict bad. In many cases, consensus is in fact a compromise, and not all parties are behind it. In addition, much consensus is reached via deliberations with representatives of public and private organisations. The players around the table in the Dutch planning system are often the same ones, and while in some cases they represent society well, in other cases this is much less so. The value of difference in perspective, of testing differences, and finding something new, is often not recognised in this approach. If the same players assume that they have to avoid conflict and come up with a consensus solution, this also tends to pressure the experts, including scientists, who can advise the planners or the collective of decision makers. It reinforces existing tendencies in some disciplines to see themselves as the objective answer to social problems, and makes it more difficult for science to actually change things. Indeed, new or simply different scientific perspectives are likely to be excluded if these do not legitimise an existing system of spatial ordering or the consensus that has been reached.

Thus, the fear of conflict can be linked to a fear of difference both in science and in administration, and the two fears reinforce each other. In an evolutionary governance perspective, this fear makes it harder to adapt to changing circumstances. If conflict is avoided, it will simmer and explode later, or it will be suppressed and governance will reproduce an order of things that is less and less an answer to issues as seen in society. Good administration allows difference and conflict to arise in politics, yet is able to manage it, so it doesn't spill over and create chaos. The different positions in governance ought to become visible before an assessment can be made about public goods. An obsession with consensus, within a decision making environment that is desensitised and too narrowly defined, renders the power of difference null and

void and contributes to the maintenance of a bureaucratic worldview that sees itself as fair, scientific and efficient, while in many cases it is not (Frissen 2007). Seeing 'participation' as the solution of these issues can also not be considered being wrong as such, but the devil is in the details (Van Assche et al. 2011b). Participation can go wrong in roughly two ways. It can undermine the mechanisms and benefits of representation, which slowly evolved over several centuries. Society cannot be based only on participation, simply because there are too many people and too diverse interests involved (Held 1996). Secondly, government can define participation, and either manipulate or unwittingly reproduce existing relations of power, configurations of power/knowledge, routines, concepts, by means of the design of the process of participation. Some new actors can be brought in but without real impact, or old actors can suddenly 'participate', now in front of the screen instead of behind (Turnhout et al. 2010). Or, new actors can be brought in to legitimise in a new way what has been done before (Van Assche et al. 2011). If one furthermore combines ineffective participation with fear of conflict and difference, one can see that it will not easily lead to a substantial adaptation of the planning system.

### The evolving perspective

The Dutch planning system co-evolved with society by continuously looking for alternative approaches to coordinate practices and policies, but the ideals of social engineering were never left. In line with the rise of neo-liberal ideals and pleas for more inclusive forms of democracy, planning responsibilities were devolved to lower tiers of the government and private companies and stakeholders and residents became involved in the processes. This also implied that the form of planning changed, with less emphasis on guidance and more on mechanisms of control (Van Ark 2005). The importance of visions and plans was reduced and legal tools for coordination became more important (see for example Beunen and Van Assche 2013).

Within the configurations of power/ knowledge and actors/institutions that shape the Dutch planning system, a certain form of market, with specific links to politics, law and science, evolved. When neoliberal discourse became more prominent, this 'market', that was given more power, had little to do with the markets for land and housing that could be observed in other countries (Assche and Leinfelder 2008). The result is a typical Dutch planning system in which government and markets are strongly interwoven. New roles, rules and power/ knowledge configurations had to evolve out of the existing ones and the market players that took advantage of the new wind in policy were the ones that thrived in the earlier constellation. Thus, building one's own house is still nearly impossible, and small constructors have no chance. Even small engineering, consultancy and design firms have little chance in the 'fair' competition that has been shaped by a century of co-evolution of a limited set of actors. The gorillas that were fed and grown out of proportion by the zookeeper do not fairly compete with the little monkeys next door once the zookeeper leaves.

The simultaneity of neoliberal and social engineering discourse with many government actors adds to the attraction of this situation: most actors prefer to work with a small set of players they know, who know 'how things are supposed to work', and many of the older players do not mind incorporating some newly defined public goods in their strategies, if the responsible authorities also maintain the scarcity, reduce competition and keep prices high.

### THAT WHICH WE CALL PLANNING, BY ANY OTHER NAME, WOULD SMELL AS SWEET

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>> In this contribution we introduced Evolutionary Governance Theory (EGT) as a framework to reflect on the adaptive capacity of the Dutch planning system. Enhancing this adaptive capacity and thus triggering and directing changes, are challenges that have to be worked out on different levels within planning organisations, universities, research centre, politics, law and society at large. Taken into account the path, inter and goal dependencies that direct, enable and limit the on-going change of planning system and its planning perspectives, any kind of recommendation could easily be side-lined as an ignorant attempt to overcome the many constraints for adaptation as presented in this chapter. We partly agree, but would like to argue that the recent crisis presents a perfect moment to rethink the planning system. The strong position of planning in the Netherlands is eroding and alternative perspectives are likely to gain more attention and influence. Furthermore we will embed our recommendations in a reflection on the context in which they are supposed to land. Change and evolution are part of this context. The role of planning in society, the roles of particular actors and institutions, and the role of certain forms of knowledge will change. Reflexive governance can build on a thorough understanding of these changes. Therefore we started with an analysis of the dominant planning perspective and its underlying assumptions.

The analysis in this chapter shows the institutionalisation of a dominant planning perspective, which systematically overestimates the possibilities of steering. This institutionalisation is reinforced by repeating performances of success, which have strengthened the rigidities in the planning system (Van Assche et al. 2012). These rigidities partly explain the difficulties the Dutch planning system faces in adapting to a changing socio-political environment in which other perspectives on planning are becoming more important. The self-referential reflections of the planning system obstruct a thorough self-analysis of the possibilities and limits of planning in different forms. This is partly maintained by the interdependencies in the system, such as the strong links between politics, administration, and academia, and partly by the path dependencies, like the institutionalisation of specific underlying planning assumptions in academic and professional networks. It is the combined effects of these dependencies that hampers the inclusion of other perspectives, the evolution of existing ones and a revitalisation of the planning system.



The recurring modernist ideologies underlying planning tend to install overoptimistic expectations about the possibilities for science to understand socio-ecological systems, define problems, and design and implement solutions (Duineveld et al. 2009, Scott 1998). As a consequence contemporary planning organisations, procedures, policies, plans, and practices are often strongly based upon the idea that they can be used to steer and control spatial developments. We agree with Rip (2006: 88) that 'the notion of 'steering', with its implication of an agent faced with an 'object' to be steered, is of course misleading since the steering agent is part of an evolving system, including the 'object' and himself. 'Steering' and 'implementation' look different from an evolutionary perspective. Indeed, actions can have effects that are predictable to a certain degree, but an interpretation of effects as results of steering remains just that: an interpretation (Luhmann 1990, 1995).

Adopting a non-linear perspective would imply more modest expectations about steering. Steering should be seen in the context of co-evolving social systems. Each social system is self-referential and steering is therefore always self-steering. 'For causal analysis, self-reference is an explosive. Social systems are unpredictable, an output once observed for a given input will most likely not be the same for the same input later' (Paterson and Teubner 2005: 4). Thinking about planning in terms of complexity and non-linearity should start from a sustained reflection on path dependencies and interdependencies in and between function systems and organizations. These reflections can be used to search for spaces and times when interventions are more likely to gain effect. Such reflections require a theoretical framework that can grasp the complexity and unpredictability of everyday practices of planning and analyse the continuous dynamics of the planning systems, its structures and its elements. This could be read as a warning against theories and approaches that oversimplify reality and reduce planning practices to a number of variables that can be measured and controlled (Voß and Bornemann 2011; Scott 1998; Jacobs 1961).

Certainly such perspective on steering does not imply that planning would become dispensable. On the contrary, history has shown that attempts to plan do sort effects and that planned intervention have in many cases solved social and environmental problems and brought dreamed for worlds closer to reality. History has also shown that ideas about the best spatial organisation change and that goals change while working on them. In terms of planning this means that although planners still can work on plans, there should be awareness about the dynamic character of the ideals and ideas upon which these plans are based. Once made, these plans, as well as their underlying ideals have the power to influence the course of governance in various and puzzling ways. They can create new goal and path dependencies, shaping new perspectives, interactions, and strategies. Thinking about the impacts

of plans in terms of goal dependencies, rather than in terms of conformity (or impact) can help re-locating the influence of planners and plans in the present of governance. That present is always co-determined by other actors and institutions, in interdependence, and it is shaped by legacies from the past of various sorts. The success of Dutch planning in the past has led to an overly strong and comfortable focus on the future, which was assumed to be knowable and changeable to an extent not truly investigated, and to a past and present which were similarly understudied, so their constraining and enabling effects on planning were not fully grasped. So, when society changes, these changes are not incorporated easily into the planning system, and dependencies that once produced appreciated and implementable plans, start to produce less appreciated and unimplementable ones. The effects of constructed futures in the present have become different, but there is no form of reflexivity, which makes this visible, and makes adaptation possible.

Education plays an important role in the construction and reconstruction of dominant planning perspectives and the emergence of new ones. Adaptation of the planning system should therefore also include a revitalisation of planning education programmes. If educational programs remain strongly focused on, and embedded in, ideals about steering and engineering it will be much more difficult to rejuvenate the planning system. If students will be trained to follow linear planning procedures, supposed to lead to perfect plans and policies, they probably will draw on these ideas once they work as practitioners. Students should learn what planning implies if it is seen from a non-linear perspectives, taking into account uncertainties and complexity. Reflexivity, a deeper and more systematic self-reflection, a reflection on the disciplines, their teaching, and on the role of planners and designers in society, is therefore considered an crucial academic skill that needs to be educated and trained (Beunen et al. 2013a). Reflexive practitioners, putting forward new understandings and new perspectives can be a vital source for adaptation.

Therefore we like to end with a list of ten changes we believe, once implemented will make the planning system less rigid and more adaptive. Some recommendations will necessarily be more abstract, others more concrete:

- 1** Rethink the academic discipline planning. To become more applied, more useful for society in the long run, the discipline needs to become less applied and more reflexive and analytical. This would allow the discipline to produce new perspectives that can be introduced in the planning system and might strengthen it adaptive capacity.
- 2** Include and accept disciplines and groups like anthropologists, geographers, journalists artists and entrepreneurs to reflect on the Dutch planning system and the many planning practices. Don't just observe planning from the dominant planning perspective.

- 3 To prevent rigidities, in the form of dominant discourses on what planning is and should be, it is important to become aware of the contingent nature of the 'true' meaning of planning. Accept that things always could have been different and that they might be different in the future. Once this is understood and accepted, one can allow different views, different perspectives to impact planning.
- 4 Planning is a means, a form of spatial coordination that can be effective and bring forward something good. But one has to recognize that other forms of spatial coordination are possible. Planning might emerge without the label planning. That however, should not lead us to abandon the project of planning; it is just that some of the assumptions regarding the power of planning and planners are metamorphosed remnants of a modernist ideology.
- 5 Accept that the life of organisations should be subject to the planning system not the other way around. Reform or, if necessary, get rid of the planning organisations and research centres that are no longer required in a planning system that embraces the notions of complexity and non-linearity.
- 6 Besides planners many other actors, individuals and organisations, affect spatial organisation. Make these more explicit and include them in the planning system and its embedded perspective. There are all kinds of actors performing roles that have traditionally been ascribed to planners or designers. Many of these actors are not recognised as planners and designers, yet they plan, they design, and they mould landscapes. A reflection on how the roles of planning in society have evolved over the last few decades could bring to the fore many other existing and possible roles that remained unnoticed within the dominate planning perspective. Think of art school students working on temporally roof top gardens, citizens taking care of their back yard, cultural heritage or health care. Think of civil servants who dare to think beyond the normalised and juridical reproduction of restrictions.
- 7 Creativity, flexibility, and diversity are pre-requirements for adaptation and innovation. Avoid the pitfalls of tight delineations of roles. Strong role expectations delimit the possibilities for the reflection on and transformation of roles. Unwanted rigidities can be created if too much emphasis is given to core-curricula or professional registers.
- 8 Try to untie the strong links between government, companies and scientists that are created via funding constructions and innovation policies. Most of these strongly restrict innovation since they reduce the space for diverging perspectives. Provide scientist with space for critical reflections and allow planning practitioners the option not take the advises of scientist into account. Leave aside the idea the science can legitimatise planning decisions; planning decisions, in whatever form, will always be politics, not science.

- 9 Recognise the same rationales under the seemingly new approaches and theories. Many of the planning policies and approaches that emerged as an answer to perceived problems failed because they didn't fit the particular context and mainly reproduced old practices. Either they emanated from perspectives that did not grasp the present manners of coordinating policies and practices, or, conversely, because they did see new situations too much in the light of old stories.
- 10 Foster experiment and allow diversity. Diversity can be found if new and different actors are involved in the planning processes. This will increase the chance that new ideas and approaches will emerge, but be aware that it is unlikely that these can easily be copied to other places. <<



**PART B**

**THE SPECIFIC**











# >> The Appropriated City

## Citizens taking control?

Beitske Boonstra and  
Maurice Specht

### INTRODUCTION

>> In 2008, a forgotten but iconic old building in the Katendrecht neighborhood of Rotterdam came to serve as the workplace for five social and cultural entrepreneurs, who were working on a photography project about residents in the area. During that time, the building proved to be a welcoming place for visitors and small events, and gradually, more and more activities and initiatives, plugged into what became known as Kaap Belvédère, attracted to the building, the location, its amenities and atmosphere. Four years later, Kaap Belvédère names itself the 'first house of intangible heritage in the Netherlands' and is widely appreciated by its neighbors, visitors from all over the world, its volunteers and the professionals involved. Kaap Belvédère was never planned like this, but looking back, it seems a very logical use of a building on a place and in a neighborhood like this. (Malherbe 2012). The same can be said for the In-Between Garden (TussenTuin) in Rotterdam West. The In-Between Garden, a temporary garden on a demolition site in the middle of a stony neighborhood of Rotterdam, the Old West, is an example of public space made by residents. What started out as a two-year temporary intervention in the area now has a prolonged effect. Through organizing the garden, residents built up networks among each other, with professionals, civil servants, politicians, artists, designers and researchers. It has used the social, cultural and organizational resources available in the neighborhood to make this possible. But what is more, it has reinforced the strength and possibilities of these resources by turning them into action, creating an active energy in the neighborhood, and making people - both professionals and residents - realize what can be accomplished if people put their shoulders behind something. (Van der Zwaard 2012). Singeldingen (Canal-Things) is an initiative that came from three local residents who created a meeting space on an unused patch of green along the Heemraadsingel, in the neighborhood of Delfshaven, Rotterdam. They started with organizing activities several years ago, and gradually Singeldingen became an accepted and appreciated element within the neighborhood. It started as a temporary kiosk, but this summer, a small grey box popped up along the road next to the canal. It contained electricity connection put there especially for Singeldingen. The initiators never started out thinking they would need official water and electricity connections, but for those who know about it, it felt very logical. It made sense (Hillen 2012).

Looking back, one gets the feeling that all three initiatives were a very logical thing to occur at that place and at that time. But things only look logical after the fact; after something has turned into a fact. This particular feature is inherent in the urban initiatives we explore in this chapter, but actually it is an inherent part of all urban interventions, regardless where or from whom the intervention is originating. Once things are realized they look logical; their stories add up. But everyone who has ever been involved in taking a civic

initiative – whether it is opposing a certain policy or plan (Verhoeven 2009), participating in a neighborhood regeneration process (Specht 2012) or creating a new public space – knows a lot of work is required. This work, the practice of realizing a civic initiative, is what interests us here. Inspired by actor-network theory (and especially the work of Bruno Latour, Annemarie Mol and John Law), we show that understanding these initiatives as interventions in a complex urban environment, requires us to take a careful look at the practice of these initiatives. Only by following how they come to be realized, how they are enacted, how they are translated from a mere intervention towards a new urban assemblage, will we start to appreciate the meaning of such interferences. In this chapter, we state that civic initiatives for interventions in the urban fabric can be regarded as a new, emerging, planning practice. Or to put it even more strongly: as rehearsal spaces for a new theory of planning. First, we elaborate why our current spatial planning and urban policy profession is in great need for a theoretical framing of civic initiatives, a necessity caused by the current drift of governmental withdrawal, stagnant markets and retrenchments, together with the inability of our current profession to look beyond its own disciplining planning routines. Second, we look in detail how our three initiatives emerged to the point they got accepted, what ruptures they induced in their environments and what encounters they underwent with the routines in spatial urban policy. From there on, in the third part of this chapter, we theorize further on first signs that we see of a new emerging practice that puts civic initiatives in the lead of urban regeneration, and we try to provide some preliminary ideas of what such a new planning practice might look like. Not only do we hope to offer fresh insights with regard to the academic discussion within planning, but also we hope to open up new avenues for planning practice.

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## CITIZENS AS URBAN INTERVENTIONISTS

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### Relational citizenship and planning

Let us start by stating that we regard spatial planning as an act of interference in space through physical interventions. As such, planning is not a purely professional practice, in the sense of professionals working on the realization and implementation of prefixed plans in a world that is seen as predictable and calculable. Neither is planning as such a practice that foremost concerns public policy-making, in which professional planners take a lead in shaping people's attention and understanding of situations. (Hillier 2002: 42). Instead, a vision that takes planning as an act of interference in space through physical interventions, opens up the possibility of considering all actors that take a pro-active role in such physical interventions as spatial planners, regardless whether these are professionals or not, public, business or civic or a mix of actors. (cf. Kreukels 1984, Boelens 2009 2010, Boonstra and Boelens 2011). In

this chapter, we will try to argue that these visions on planning are not opposed, especially not when one does not take the plan, neither the actors, but the physical intervention itself as the leading matter of concern.

This view on planning presupposes a relational conception of space, citizenship and planning, that sees spaces and places as produced through practices, relations and encounters between various emerging actor-networks that intersect. (Thrift 1999, Amin 2002, Murdoch 2006). As such, space and action form each other, both always under construction, always in process, the crossing of multiple trajectories making change 'taking place'. (Massey 2005). Citizens who aim at physical interventions in the urban fabric are just one of the many emerging, self-organizing actor-networks crossing scales and themes and places. Citizens' 'citizenship' is not something absolute (nor is their involvement in shaping space self-evident), but rather something that is shaped through activities, interactions and experiences of people and organizations. Networks of citizens, governmental and other actors and factors shape their interactions so that they result in productive forms of action around shared matters of concern (Wagenaar and Specht 2010, Specht 2012); in the cases of this chapter, foremost spatial matters of concern.

The need for such a view on planning, and a theoretical framing of spatial civic interventions becomes evident, when we take a closer look at two current and interrelated changes that are taking place within the domain of urban spatial policy. The first change concerns a major shift within the set of stakeholders involved in spatial urban policy these days. The second change concerns the current debate among planning professionals on planning frameworks that are able to deal with this new reality.

### Shifts in urban policy

For several decades, Dutch spatial urban policy was set out along two lines: urban renewal on the one hand, dealing with existing and deteriorated neighborhoods, and on the other hand compact city policy, dealing with urban extensions and transformation of urban wastelands. Both lines were strongly governmental-led, delivering large scale urban transformation projects in which major public-private stakeholders like national government, municipalities and their respective planning and housing departments, housing corporations and large scale commercial developers were responsible for vision, planning and financing. (Schuiling 2007, Van Delden 2010). Recently however, this world has changed dramatically. The production of new housing stock in the Netherlands has dropped significantly, towards a far and unprecedented minimum since the 1970s. Urban restructuring is falling back, municipalities are left with unutilized plots of land, housing corporations take a back seat. Even demolition numbers have decreased. Many large scale urban transformation plans are put on hold, developers are avoiding risks, housing corporations are refocusing on their core tasks, local municipalities are out of money and retrench. (Manshanden et al. 2012, Joolingen et al. 2009). Many argue that this is because of the drop

of the financial markets, but it would be unjust to solely blame the financial crisis. When the private market and building sector first started collapsing and withdrawing from urban transformations in 2009, a trend of governmental withdrawal in both urban renewal and compact city policy had already been unfolding for years.

Governmental involvement in both urban renewal and urban transformations has shown its ups and downs over these decades. Urban renewal came under the attention of national government in the 1960s, transforming a once local practice of small scale interventions to improve individual buildings, into a practice of large scale demolition and substitution of the existing housing stock. During the course of the 1990s, the discussions concerning urban renewal broadened to policy domains such as social well-being and economic development, followed by a narrowing (during the 2000s) towards a small selection of most deteriorated neighborhoods. Incentives for urban renewal were given by national government through extensive funding, and projects and programs were executed in collaboration with local governments and housing corporations. The role of the residents in urban renewal was originally strong in the 1970s but decreased ever since. It was put back on the agenda during the 2000s, but most projects remained governmentally financed and institutionally driven, and initiatives from residents themselves until recently remained only a marginal issue of concern. (Schuiling 2007, Wallagh 2006). Over recent years, the financial means set out by national government for urban renewal have decreased significantly, and since nor the municipalities nor the housing corporations currently have the financial means to fill in this gap, it has become very doubtful whether and in what form urban renewal schemes will run in the near future.

The other strand of spatial urban policy, compact city policy, started in the 1980s, initiated by the four major cities and taken forward by national government with the aim to concentrate urbanization near existing urban centers and on inner-urban locations such as deprived former industrial areas. (Boelens and Wierenga 2010). It was organized as a market based approach with a large role for developers and designers, but with major incentives from national government through location-based subsidies for housing in areas chosen in deliberation between national and local governments. (Van Delden 2010). In 2010, in the midst of the financial crisis, this policy was declared as more or less finished, leaving only the most complex, inner city sites untouched. (Boeijsenga 2010, Van der Krabben 2010, De Zeeuw 2010). Also with regard to these locations, it is very uncertain what actors will be willing to take forward these transformations.

Meanwhile, national government is setting out a clear line of reasoning with regard to urban policy. More and more it should become the domain of local government, citizens and entrepreneurs, as pronounced by sequential



national government coalition agreements (Min AZ 2007 2010), national spatial policy documents (Min VROM 2007, Min I&M 2011, Min BZK 2011) and studies by government advisory bodies (VROMRaad 2004, WRR 2005 2010 2012). Therefore, they aim at creating more opportunities, choice, control and responsibility among citizens, businesses and social institutions for urban spatial development. The responsibility for quality of the living environment lies with residents, local actors and municipalities, the ministry argues, and measures are suggested to encourage home ownership, more involvement in the neighborhood, more private commissions and an exploration for possible new funding models. (Min I&M 2011). In the Vision on Infrastructure and Spatial Development, it is even put more strongly in the proclamation that national government will no longer set out any spatial policies, except for some policy guidelines for assessing locations on their sustainability, and minor involvement of the urbanization of Amsterdam and Rotterdam (as the development of these 'mainports' is considered to be of national importance). Remaining issues on spatial urban policy are considered to be foremost a concern for local governments, citizens and local stakeholders such as entrepreneurs (MinI&M 2011).

### Looking for new planning practices

The current shift in content of and stakeholders involved in spatial urban policy is thus both a result of the financial crisis and a decrease of financial means, and of an evolving trend of (national) governmental withdrawal due to shifts in political thought. This combination makes clear that this is not a question of simply waiting until the markets will pull on again, but that a fundamental change is occurring. That this change is acknowledged within the professional domain of urban spatial policy, and that there is a demand for new professional approaches that are able to deal with these changes, is illustrated by the amount of brainstorming sessions and debates that are currently organized among professionals working at developing companies, municipalities or housing corporations. Among the elements that are mentioned in such brainstorm session are: variable coalitions around specific propositions, combined with related forms of financing (Joolingen et al. 2009, Heijkers et al. 2012); plans that are more open to specific situations, localities and more fit with local demands, making productive use of difference (SKG 2012, Heijkers et al. 2012); plans focused on qualitative environment, and quality incentives in the existing urban areas, without subsidies and meeting demands (De Zeeuw 2010, Joolingen et al. 2009); plans for smaller units, that need smaller investment and bring smaller revenues (Joolingen et al. 2009); making more creative use of existing planning instruments, more flexible and demand-oriented, and more flexible instruments too (SKG 2012, Heijkers et al. 2012); focus on maintenance or 'maintenance for improvement', and governance with a focus on supporting and facilitating initiatives (SKG 2012, Heijkers et al. 2012).

These suggestions for new approaches of urban spatial policy, do however not yet address the real shift in stakeholders yet. Although governmental-led planning will presumably not belong to the past, in current times of public retrenchment and withdrawal, a stagnant market and the network and information society we live in, a more active role is expected from citizens. This is not just a matter of relocating urban policy from public to civic actors, but asks for a whole new conceptualization of spatial urban policy. Two publications on this matter are worth mentioning in more detail, as they undergo quite some popularity among Dutch policy makers at this moment: 'The Energetic Society' by Maarten Hajer (2011) and 'The Spontaneous City' by Urhahn Urban Design (2010). In 'The Energetic Society' Hajer describes an emerging society in which citizens and businesses seek to interact with each other and create a chain of creative competition, aimed at improving the quality of existing towns, rather than at a quantitative building task. A world of bottom-up initiatives, that take their direct environment as a starting point. In order to create links between citizens, and urban and regional planning, Hajer argues in favor of a lighter form of planning, with more room for citizen initiatives. Besides a radical incrementalism, organized around specific topics, the government is not in the lead, but should guarantee collective decision making, represent the public interest, and provide open data and the accessibility of information. However, he argues further, a governmental withdrawal without any strategic purpose can as well result in decline of spatial quality. Therefore, according to Hajer, governments need to set out frameworks and visions for future developments. Within these frameworks space can be given to individuals and businesses to shape and implement their ideas. (Hajer 2011). In 'The Spontaneous City', Gert Urhahn and his co-authors also argue in favor of an urban spatial policy in cooperation with residents and businesses; a flexible urban development that is built upon civic initiatives, on never ending change, growth and adaptation. In his view, professionals in urban planning work closely with all sorts of initiators and aim to build a bridge between individual needs and common interests, ideas from end users, their creative power and investments. Like Hajer, Urhahn argues that this means that urban designers should engage in shaping the spatial conditions and frames in which freedom for initiatives can be found. (Urhahn Urban Design 2010).

### **Moving beyond frameworks**

Although these two works are largely shaping the current debate on a new approach to planning in the Netherlands, and valuable as they are in providing suggestions, inspiration and insights for planning practitioners, they do not entirely cover the challenge. Urhahn and Hajer see the same dynamics as we do, but remain within the traditional set up of an inclusionary design (Urhahn) or a governmental-led (Hajer) approach. To stimulate and facilitate civic initiatives they both suggest the development of a new kind of planning or governmental framework to fit initiatives in. And although that sounds nice and supportive,

it still seems to put the framework first. The question to ask then is what exactly the difference is between a framework setting out the contours of what is possible and allowed, and a prescriptive plan as we know from traditional planning practice? What exactly does 'freedom and space for initiatives' (Urhahn Urban Design 2010: 18, Hajer 2011: 38) mean when the contours in which this freedom can occur are defined beforehand? Notwithstanding that a (legal) framework is one of the elements that help initiatives to actualize or materialize, this is in our view definitely not the only or most important way of approaching the emerging practice of civic initiatives. Frameworks are as inclusive and pre-fixed as for instance communicative planning approaches are, as they can still differentiate between initiatives that fit the envisioned content, the selected area, and the procedures set out beforehand. When frameworks are set beforehand, the focus is still on a pre-fixed organized structure. Hajer pleads for more incremental experimentation, but does not yet define any consequences such an approach would have for planning practice, and his argumentation remains governmental.

Thus the tools and approaches they propose do not yet fundamentally change or challenge the behaviors in spatial planning: government and their frameworks are still in a dominant position. And things have change, we would argue, because under the radar a host of initiatives is popping up and emerging, appropriating the urban environment. What for a long time appeared to be fringe elements mere enlivening or even distracting from the actual development of the urban environment, are starting to appear as valuable strategies for urban development on their own. The potential of these newly emerging practices is not clear from the surface, and perhaps it is a bit too radical to regard small, local initiatives as the new bearer of urban development, but we do think that a new way of valuating them is necessary to truly benefit from their potential. In order to do this, we argue it is necessary to change our approach of these initiatives and no longer start from the framework or government, and see how these initiatives could be fitted in, but take these initiatives as valuable objects of learning themselves and see what kind of practices on a larger scale can be distilled from them. Or stated otherwise, we propose to see these initiatives as rehearsal spaces for a future planning practice, something we will come back to in more detail in the last paragraph. What makes this an extra challenge, is that an approach that puts civic initiatives in the lead, does not fit easily with our ingrained ways of thinking and doing things in urban development. When various actor assemble around specific interventions of initiatives, this is not created by an institutionalized context that is deliberately created by a steering government by means of a framework, but instead is created by a specific context that crosses right through institutional frames, policy lines and the domains of professional actors. (Verhoeven 2009). Civic initiatives are relational, and they behave as self-organization, in the sense that they emerge through interactions between space and people, from unstructured beginnings with the aim of creating new

order on top of already existing situations. (cf. Prigogine and Stengers 1984). In the context of urban development, civic initiatives emerge autonomously from planning procedures, aimed at physical interferences more or less out of self-interest. (Boonstra and Boelens 2011). What our current spatial planning practice is in great need for, because of the above described shifts in stakeholders and the inability to think beyond frameworks, is a way of understanding what planning practice would look like when interventions are leading and the rest is focused on flowing along these interventions? It is not our aim to re-appropriate such initiatives into governmental frameworks. Instead, we think that not the framework, but the intervention itself should be regarded as leading.

### THREE CIVIC INTERVENTIONS IN ROTTERDAM

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>> To see what such an understanding of this idea of planning as an act of interference and local initiatives might bring, we closely follow the emergence and development of the three initiatives we briefly introduced in our introduction: Singeldingen, In-Between Garden and Kaap Belvédère. We have selected these cases because they were all collectively organized by citizens, not initiated by governmental authorities or any other professional planning institutions, and as they aim at physical interventions in the urban environment, they fit the definition of civic-led self-organization in urban development. Therefore, they provide insight in what that lies beyond the disciplining frameworks provided by the above mentioned 'new planning approaches'.

We describe how these civic initiatives developed using the concept of translation, a process of making connections between things that are not consistent per se, but that gain consistency along the way, translating themselves into something that is accepted and seen as logical and 'in place'. (Latour 1999). Using the concept of translation makes it possible to trace how an initial idea of interfering in the urban environment has moved through self-organization towards the actual materiality of a physical intervention. The process of translation consists of several phases in which the identity of the actors and the network, possibilities of interaction and movement are explored, negotiated and delineated (Callon 1986: 203).

In spatial planning, translation refers both to the collection of resources needed for the realization of a spatial intervention (Boelens 2009), as to the constant maintenance of the homogeneity and coherence within existing spatial assemblages. (Thrift 1996, Hillier 2007). Spatial planning itself can be seen as a process of network-building, in which entities of various kinds are assembled in ways that allow the network to undertake certain functions. It is a process in which actors with a certain interest and willingness to invest in

their local environment out of more or less self-interest, engage in organizing and networking meaningful spatial connections, and the means, such as land, finances, buildings, permits etc., to achieve their goals. (Boelens 2009 2010). As we argued in the previous paragraph, we see a practice emerging in which this process of translation comes less and less from professional actors that traditionally already own a significant set of means. Non-professional or civic actors do not traditionally 'possess' such means, and thus much more work is required in the organization of the network.

Translation can occur both as a collateral incident as two or more actors unintentionally encounter, for instance in space. (Law 2009a). But translation can also be regarded as a pro-active and performative process of network building, of creating links between actors and factors that were not linked before. (Law 2009b). This pro-active understanding does not just tell the stories of how things have turned out this way and how they work, but also on how things have been made better, according to the leading actors in the initiative. What is better, however, is not a pre-given truth or any fixed optimum, but is something that is normative, situated, contextual and thus constructed as entity within the network. What counts as 'better' is situated in a practice, and interferences for the better aim at shifting the object of treatment, in order to counter deviances that are felt or considered as incommodious to the translation of the network. What is effective always depends on the particular circumstances, defined by leading, intervening actors. (Law 2009b). Even though a eventual physical intervention might not have been entirely envisioned beforehand along a prefixed plan (as some collateral translation might occur as well), we do consider the actors involved in the development of the initiative as pro-active and normative interventionists, making hard work in assembling the necessary passage points, initially around the need for an interference, and later around the necessity of a specific interference, knotting actors and places together and producing new causalities along the way.

We have reserached our initiatives on three levels, that are not necessarily sequential or linear, but rather relate to the deepness of the embedding an initiative has in its surroundings. The first level is that of problematization and intervention, the first interference 'for the better'. The second that of interessement and enrollment in which the network is further strengthened, expanded and made thicker. The third level is that of mobilization and more or less stable assemblages in which the main focus is on the maintenance of the existing network. These steps, or moments that are presented as phases a network moves through, are however in practice not at all so sequential, and rather overlap. Translation therefore is not a linear process towards optimization, but rather different types of behavior that should all be simultaneously present within a process in order to succeed – and be a success for all actors involved.



### Interferences 'for the better'

With this emphasize on interference in the urban environment through physical interventions, the urban environment is no longer a "single passive object in the middle, waiting to be seen from the point of view of seemingly endless series of perspectives. Instead objects come into being – and disappear – with the practices in which they are manipulated." (Mol 2002: 5). Or in our words: the urban environment does not remain untouched. As a start, a problem is delineated concerning a physicality, in our case the urban environment, as an important object. This problematization is often presented as a first move. The leading or initiating actor starts with a disassociation from the existing situation, making others (and one selves) see there is a problem that needs to be addressed by new ways of doing. The actor renders him- or herself indispensable in finding this new way of doing, and defines obligatory passage points that need to be taken into consideration in finding new kinds of behavior (Callon 1986). But whatever is said about this problem is only talk, and therefore the delineation of the problem needs to be followed quickly by foregrounding practicalities, materialities, the pro-active creation of events that not only aim at changing the understanding of the physicality, but also aim at changing the physicality itself. (Mol 2002: 12). What then matters is how the necessary coordination for this 'interference' can be made visible and how it is established. (Mol 2002: 55). Planning as interfering to make a difference, to re-do space. (Metzger 2011).

This can be illustrated nicely if we look at the start of Singeldingen. The first move towards Singeldingen was centered around the concern that the potentiality of the Heemraadpark was not fully deployed. Before the start of Singeldingen, the Heemraadpark was occupied by a shrewd paved playground bounded by high fences and vandal-proof seating, and the large grassed areas were mostly used as a disposal area for dogs. Three local residents shared the concern for the park, and also saw some potential. One resident recognized the strategic location of the park as a place for people to meet. The other wanted to be able to play in the park, and not just within the boundaries of the paved playground. She reasoned that with a couple of simple measures – such as the provision of a toilet and the possibility to get something to eat and drink – it would be possible for people to stay longer, and to do other things in the park as well. The third resident wanted to start a cafe and at the same time, to bring back some of the old character of the nineteenth century park along the canal. Three residents saw potential where others saw problems, or at best nothing of particular worth. To make others see the potential of these different, but shared dreams as well, and to make others see that something else, something better was possible in the park, the three residents did not only use words. They used a physical intervention. During what afterwards became the first season of Singeldingen in 2008, they placed a spring-roll cart converted into a kiosk in the park. Over a period of six weeks, Singeldingen tried various locations

and organized different activities in the park, for adults and children from the neighborhood. With this appropriation of space they were able to showcase the potentiality of the park, as well as their ability to translate this potentiality into action by activating and weaving together a local network. By literally occupying the spot, they turned this particular space into a valuable place. It is not so much that they discovered the worth of the place, but by weaving a network at this spot, it became valuable again, and over four years' time, a vibrant public meeting place developed. This makes Singeldingen the most clear example of our three cases where citizens interfere in the urban fabric and public space through a physical intervention from outside the planning machine.

In the other two cases there were closer links with professional actors (two housing corporations and the municipality) from the start, although the professional actors never imagined, nor anticipated the outcome of the initiative. In the case of The In-Between Garden the project came out of an open call of the housing association to do something with an empty plot of land. The houses which had stood there had been demolished, but the start of the development of a collective-private housing project on the spot was delayed for another two years. The housing corporation considered it for the better if there would be some in-between use on the plot. This first call however, drew out only five people, of which two were afraid of what might happen on the plot and just wanted fences, one person did not want anything and two people said they considered something with green and music for the better. Nothing much happened, until the latter two people published a small article about this idea in the neighborhood newspaper and a local landscape-architect came forward. Within weeks a plan was drawn and a group of six initiators formed itself. Building on the qualities and the social and cultural capital of the people in this group, as well as the sympathetic attitude of the local politicians and professionals towards planting greenery, they were able to convert this empty space into a high-quality green and music space. Where others saw a potential nuisance to the neighborhood, they saw the potential to create a much needed green public space, and intervened accordingly.

Kaap Belvédère, finally, was 'discovered' while two people were working on an art project concerning active citizen communities in the Southern part of Rotterdam, as part of a regeneration project for this part of the city, led by the municipality and the different housing corporations. The building was closed and fenced off, but appealed to them while looking through the window. Where others saw a building that needed to be demolished, they saw potential. Due to their close relationship with the owner, a housing corporation, they were able to obtain the keys and appropriate the building. What was meant as a temporary working space, however, turned out to be much more.

**FIGURE 5.1**

Kaap Belvedere  
(Photo: Joop Reijngoud)



**FIGURE 5.2**

Tussentuin  
(Photo: Annet Delfgaauw)



**FIGURE 5.3**

Singeldingen  
(Photo: Manolya Isik and  
Annette de Vries)





All three initiatives showcase the ability of people to look at the urban fabric with a different view. The initiators were able to problematize space, not so much by saying something was wrong, but by saying and showing that something else, something unexpected, and most importantly something better was possible. And although we at this point already addressed them by their name – Singeldingen, In-Between Garden, and Kaap Belvédère – at the time of these first interferences, there was not more than a hunch, a vision that things could be otherwise. To actually come into being, to form an identity, and to make a lasting impression in the public realm, they needed to move further from the initial problematization. This takes us to the second level of translation.

### **The translation continues: interessement and enrolment**

Key aspect of translation is that causalities are produced through a series of intermediaries that are not 'logical' in the formal sense of the term, but that oblige those who are interested in a proposed problem to become interested in the specific situation, through almost imperceptible shifts. (Latour 1999). After the initial problematization, the hard work of network building and translation has only just started, as the leading actors need to start interest and enroll other actors into their network and initiative. (Callon 1986). In spatial planning, this process of network-building is "the translation of the objectives, limitations and opportunities of other actors so that these can start 'behaving' according to their own requirements, but in line with the wishes / characteristics of the dominant actor" (Boelens 2009: 190). Both interessements and enrolments can be pro-active, as intentional interventions or interferences, but things happen coincidentally just the same. It is about knitting together events, and other networks that, again, are not linked by causality, but become organized around new and emerging meanings. Interessement and enrolment are closely linked to each other. Interessement means that the initiating actors look for allies, and try to tie them to the network. In doing this, they are in competition with other evolving associations and identities, and severe work is needed in order to 'interest' other actors to the emerging actor-network. (Callon 1986). This behavior is therefore predominantly about dealing with the outside, with others, aiming at a further expansion of the network, considering what needs to be taken into account, and what new propositions need to be found in order to move forward. (Latour 2004). By enrolment on the other hand, the specific role of the actors that become interested in the actor-network are negotiated, and a common identity is determined and set. (Callon 1986). This behavior has therefore a predominantly inward orientation, focused on a further contraction of the network to become thicker and more robust. Propositions are instituted or otherwise rejected, hierarchies are set, and both the inside and the outside of the collective are stabilized, and the content, boundaries and materiality of the particular space are defined. (Latour 2004). The more actors become interested and enrolled into the chains of translation, the more actual an object, plan or initiative becomes. Initiators start with almost nothing, just an idea, and while

working their way through they construct a context around their idea. (Latour 1996: 119 133). Lets illustrate this phase by looking in more detail at our three cases.

From the start the initiators of Kaap Belvédère used the building as a work- and meeting space. It became a natural meeting place for both the groups who were portrayed in the art project, for current and former residents of Katendrecht, and for professionals who were involved with the regeneration of Katendrecht specifically and Rotterdam South in general. During eighteen months of intense voluntary labor the building, which had stood empty and had already been on the nomination for demolition since the early 1990s, got turned into a vibrant meeting place. The core team, consisting of five people, started to initiate all sorts of occasional events, which increased the identity of the building as a place where people could meet and share stories. During those first eighteen months, and without any funding, seven exhibitions, two happiness events, three reunions, twenty-four eat and meet events, thirty-five Sunday afternoon open house events, seventy-six life stories, twelve tours, two newsletters, five do-it-yourself weekends, eleven projects elsewhere in the city were organized, by 210 volunteers, attracting 5,500 visitors from the neighborhood and far beyond. Activities included the 'The people's kitchen' (at which an immigrant from one of the 157 nationalities living in Rotterdam prepared a 3-course dinner together with volunteers and told his life story to a crowd of 50 to 60 people) and other food oriented programs; photography exhibitions; and the House of Happiness, a project to inspire urban developers, residents and visitors with lectures, an exhibition, workshops, food and film. Slowly the initiators started to see the place as a space where all kinds of stories – of what they started to call 'immaterial heritage' – came together. What added to this, were the many stories that came from the building itself. The building had always been an important meeting place for all kinds of groups; it had served as a cafe and restaurant, but also later as a space for jazz performances during the Second World War, dancing, cinema, magic shows, wrestling, for performing Greek myths and also as a neighborhood museum before.

Gradually, storytelling became a storyline for the building itself, enabling many people to tell and share their stories and to meet. All this created a sense of importance, of value around the building. The temporary nature of the whole project, aided by the quality and attention with which the different activities were organized, made it possible for a lot of people to become interested and enrolled in the project. But both the core members, as well as the volunteers and the many visitors all wanted it to continue, convinced that this would be for the better. But this meant that many new things had to be done. For one the building was lopsided, and needed to be renovated substantially. Furthermore the two current owners Woonstad (the housing corporation) and the OBR (the municipal development agency) had to be convinced to preserve the building



and not – as was the wish of Woonstad – to demolish it and replace it with new apartments which would fit in the overall redevelopment of Katendrecht. And third it meant that the core group had to come up with a long-term business plan to form a new cultural initiative (in times in which culture is having a hard time in the Netherlands). In order to interest and enroll the housing corporation and the municipality, a business plan had to be written (containing the history of and the vision for the building, and financial and organizational paragraphs). A financial model was re-invented in with which private persons could invest in the project through cultural ‘bonds’ – made possible by a tax-rule for cultural real estate (for this they got free help from a financial company), a board of advice was formed (comprised of people placed high in the world of finance, housing, building and local politics), and many, many negotiations were held with the housing corporation about the conditions under which they were willing to sell the building (which they were reluctant to do, something which became clear when the housing corporation applied for a demolition license for the building while negotiating about selling at the same time). All this was necessary to translate the temporary urban intervention into a permanent presence. Nobody had foreseen this when they started with the Kaap, but the value they found in the building made them take things forward. It took a lot of effort, hard work and stubbornness to interest and enroll all the actors involved, but the process did create a particular identity over a period of eighteen months (which they tried to capture for the first time in their business plan<sup>1</sup>, into a lasting physical and cultural presence on Katendrecht. (Malherbe 2012).

<sup>1</sup> The businessplan itself shows the quality of the core team, the amazing history of the building as well as the quality of the work they are aiming for. It can be found at: <http://www.kaapbelvedere.nl/downloads/plan.pdf>

In the other two cases, also severe work was necessary to move from the first intervention towards a more lasting appropriation of space. As we saw before, the In-Between Garden started as a reaction on an invitation by the housing corporation, but that did not mean things were to move smooth. For although there is much sympathy for green interventions in the city currently, to make this happen in this particular area – which is mostly seen as a deprived area in need of help – was proving difficult. Even more so since the people involved were aiming for high quality. This caused quite some discussion with the professional actors involved, since they did not always share the same ideas about the quality requirements. With the housing corporation, there was discussion concerning the fence around the plot, in their view necessary because the plot was on the corner of a road which formed an important access to the neighborhood. But the initiators wanted this to be a nice fence, not the cheap regular fence the housing corporation proposed. With the local borough, there was discussion concerning the stage made of bamboo sticks. The initiators thought such a stage provide a bit of fun and variety in a neat and tidy, respectable-looking suburb, but in this neighborhood one has to overcome the skepticism and fear that it will turn into a mess, by investing in something beautiful and of good quality. And with the funding organisations who were asked to help pay for the music program, the ‘Entertainment’ (‘tuin’ means

‘garden’ in Dutch) there was a discussion on the quality of the music: good music costs money, why should only amateur, starting musicians play in the Oude Westen, they wondered. (Van der Zwaard 2012).

But it wasn't only with the official actors that it took quite some effort to get them interested and enrolled. The same can be said of the local residents. The In-Between Garden was not accepted straight away. As Joke van der Zwaard explains: *“All sorts of people from the neighborhood and throughout the city came to those [Entertainments, BB and MS], the amateur musicians often brought their families with them and the local children would ask when there was another event, but most of the people who lived directly around the garden didn't venture too far in and stayed watching from behind the window, sat on their balconies, or they looked over the hedge. The second year, more of them actually came in. Familiarity with a place apparently has to develop slowly.”* (Van der Zwaard 2012). So while now the garden feels like it belongs to the neighborhood, at first people had to become acquainted with the garden. They had to be convinced that something different from what they expected was possible or necessary. Partly through negotiating, partly through determination and partly through convincing by doing, such as actively inviting people in through music made by local artists, were they able to convince and enroll the neighbors. But gradually, all kinds of actors became part of the In-Between Garden, as they embraced the vision, but even more so the space. People became attached to it. It became part of the neighborhood.

That the process of interessement and enrollment is not always a straight-forward route can also be illustrated by looking at the next phase of Singeldingen. From the moment the three initiators saw the potential of the space, they tried to make other people see the potential too and enabled them to turn this into action. More concretely the initiators were able to make residents, school directors, local entrepreneurs, local politicians (both on the level of the borough and the city), civil servants and all kinds of civic groups to subscribe too and take interest in this particular space by helping out in one way or another during the first season. With the commissioning of the building of the actual kiosk - sponsored by the Doen Foundation - Singeldingen was taking a next step in its development. But while the city supported the project on one hand, it also tried to fold it into their own policy mold on the other hand. Once it was certain that Singeldingen was going to have a semi-permanent structure in the park, it had to fit in with the bigger plans the OBR (the municipal development agency) had for the area. And while the test period performed by Singeldingen had clearly established a particular spot along the canal (near the playground and close to two in-routes to the canal from the adjacent neighborhoods), the OBR wanted it to be located close to the Heemraadplein. The argument for this was that they were already trying to establish this as the main meeting space for the neighborhood and had already invested heavily in this idea. Two different arguments which stood opposed to each other. It was only through political

intervention by a local alderman in support of the initiative, that the initial decision by the OBR was overruled and the preferred location by Singeldingen was granted. So only through a political intervention did the network (now consisting of all kinds of actors, a detailed plan, and a particular physical spot along the canal) not break at this point and were they able to grow further. While this process of keeping, in this particular case the OBR, interested and enrolled took quite some efforts. But the people from Singeldingen did value it when looking back. It forced them to strengthen their public argument and made them reflect hard on who they were or wanted to be. The resistance they met thus strengthened the project.

### Becoming an assemblage

As the process of translation continues even further, the network becomes thicker, more established, more excepted, more embedded in its surroundings. The end result of translation, according to Callon, is a state of mobilization. The actor-network has evolved into a coherent whole, and only a small number of individuals speak in the name of all others in the network. Thus, a new type of order has emerged, in which certain entities within the network control the others. (Callon 1986). Or in other words: a thing has come into being, an identity has been formed, making a lasting impression on its environment. Let's look at Singeldingen to see what this means. Singeldingen has been around for four years now. It has grown both in qualities, in duration and in meaning. It has taken a foothold in both the physical as well as the mental space of the neighborhood. It has a particular identity, people miss it when it is not around. Let us now listen to what Latour has to say about coming across a technical object: "If one ever comes face to face with a technical object, this is never the beginning but the end of a long process of proliferating mediators, a process in which all relevant subprograms, nested one into another, meet in a 'simple' task." (Latour 1999: 192). If you would read Singeldingen where Latour writes technical object, you immediately get what he is pointing at. After four years, Singeldingen has proven its worth to the neighborhood. More and more people each year visit and actively support the project. It has turned the park into a public meeting place. Not only while the kiosk is opened, but also during the rest of the summer when its mere virtual presence draws people into the park. What was once a underused patch of grass is now part of peoples imagination and daily routines and during the year people picnic, meet, play soccer and just hang out here now. Singeldingen has filled the space with meaning to people, that goes beyond the actual kiosk being there. "The small group of pioneers, who began these activities by the canal, has grown in the meantime to a solid core of fifteen, who manage the project, staff it, or run one of the clubs. More than a hundred local people have helped out in some way with Singeldingen over the course of the season: taking photographs, building the terrace, baking cakes, coaching football, cooking for the neighbours, amongst other things. 'What is your Canal Thing?' is the question we pose to people in the

neighbourhood. Singeldingen provides a platform for local residents to make their own personal contribution to the neighbourhood, by doing their THING and sharing it with other residents.” (Hillen 2012). In that way, it unearths the possibilities available in a neighborhood and shows people the dormant possibilities of a particular place.

The In-Between Garden has now been there for three years. A plot of approximately ten to thirty meters, consisting of eight individually kept gardens on the left hand side and a communal patch on the right. On this you can find two huge pick-nick tables, the timber stage developed and built by a local team under the guidance of a local interior designer, a small glasshouse and a beehive. And even though the plot is fenced, especially in summertime there are always people around, and the garden is accessible for anyone who wants to come in. During the summer months there is the ‘Entertainment’: six weeks of music and entertainment for three days a week. By aligning the historical, social and cultural capital and banking on the sympathy currently there for temporary green projects, the In-Between Garden gathered the necessary momentum and actors to make these things happen. It created a productive context around itself for the garden to materialize in a short period of time. What started out as a temporary intervention has thus left behind more than one could have imagined beforehand. Not only have people shown or developed talents (or passions) which they didn’t know they had before, but it has created the connections which enable these kinds of initiatives to emerge successfully. A fertile hummus layer of connections, capacities, visions and belief has been slowly developing; a breeding ground for new activities.

Around Kaap Belvédère a highly interested and enrolled network of local residents, inhabitants of Rotterdam and professionals gathered, because many of the people who came into contact with were able to invest in it personally – either through their memories of the building, their life-stories, through their cooking or carpeting skills, etc. Out of the mere temporary working space, a new identity was born through all these activities: “At the end of 2011 Kaap Belvédère presented its plan for the future: ‘the first house for intangible heritage in the Netherlands’. Kaap Belvédère collects (personal) stories and histories of people, communities and the (changing) city and brings them to life in the imaginations of a broad public. The aim is to connect. Kaap Belvédère is continuously involved in bringing Rotterdammers together with each other and with the city and doing so in new ways. The house is an inspiring meeting place; a place where everyone and all groups can come together, to get to know each other and the city, to research, to discuss and to experience.” (Malherbe 2012). Taking on this notion of Immaterial Heritage in itself was a smart move, because it enabled all kind of policymakers, but also likeminded institutions across the Netherlands to connect with them. Immaterial Heritage is officially acknowledge by the United Nations and this treaty is ratified by the Netherlands, but up till now,

nothing much has been done with it. By aligning themselves with this, without compromising on what they do (it is still the same, otherwise it would just be smart marketing; the thing with Kaap Belvédère is its ability to cater for many authentic experiences across the city). The characteristic building, built in the early twentieth century, once a cafe for the Rotterdam elite that would come on Sundays to enjoy the view over the River Meuse, is now one of the main cultural assets of Katendrecht again. What was a temporary network is now being transformed into a permanent assemblage which plays a very particular role in the urban environment.

So, a new identity has emerged, a space has been appropriated by new actors, adding on to the complexity of the urban environment. After emergence, one can also speak of an assemblage. An assemblage is like a network, a temporal configuration of relationships among various sites, things and people, a network of meshed lines and flows of force and power relations which construct the social. (Van Wezenmael 2010, DeLanda 2002). But with networks, the connotation is on the flows and fluxes, the movement and translation, while as the connotation of assemblages is more on the identity, the more or less stable form. They emerge from the interactions of their component parts, but they are not fixed structures or closed systems, but sites of continuous organization and disorganization – a city, a planning system or a plan are assemblages. (Van Wezenmael 2010, Hillier 2007: 61-62). Exteriorly joined components remain a certain autonomy from the whole they compose, and they are neither mutually constituted nor fused into a seamless whole. Soon as an assemblage emerges, it starts providing resources for its components but starts to restrain them as well. They work as sorting machines in favor of their own emergence and maintenance. (Van Wezenmael 2010). This is the moment where ‘translation’ moves from the process of collection of resources (Boelens 2009) to the process of maintenance of coherence and homogeneity (Hillier 2009). In this level of translation, the maintenance of the network as a collective becomes important, but also the constant evaluation whether the network is able to still follow through. (Latour 2004).

Singeldingen can illustrate the continuous work of maintenance of the assemblage. Even though Singeldingen has formed an identity, has become a more or less permanent entity within the neighborhood and the park, it does not run on its own. Far from it, since Singeldingen is at its core a platform by and for the neighborhood. Singeldingen is what people make out of it. A continuous process of thinking of new activities, new meanings that can be constructed around Singeldingen, of interesting and enrolling new actors is necessary, to bind the existing network together, in order not to lose meaning for Singeldingen and its physical presence. Singeldingen is in constant process of proving its necessity, its necessity of providing the infrastructure for people to create their own meanings. The big question now is what will people make out



of it themselves (“What is your Singel-thing?”), but on the other hand how to organize and keep organized the basic infrastructure.

For Kaap Belvédère a new period has just begun. In July 2012 they finally, after a long and hard struggle, acquired the building. In September the foundations of the building were lifted, to counter the lopsided position of the building. If all goes well they will be opening up again in November to try and take up (or rather create) a position for themselves within the structural cultural and historical infrastructure of the city. It will be interesting to see whether and how they will be able to translate the ad-hoc energy, interessement and enrollment of the first phase into this new phase. Where the temporary nature of the first phase kept it ‘simple’ in a way, new demands are now being placed on the actors. The once temporary network now has to be transformed into a permanent assemblage which will play a different role in the urban infrastructure. In this regard the coming period can be seen as a prime example of what civic-led urban development entails and could mean for the city, but also makes clear what this requires from the traditional field of planning. The In-Between Garden started as a temporal intervention and remained so. They were allowed to use the plot for two years, managed to stay one year longer, but next summer the building activities for the new apartment block will start, and the garden will be abolished.

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## RESUME: ENCOUNTERING WITH PLANNING ROUTINES

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>> What we see happening is that through the network translation around an initiative to gain a context in which they can exist, these networks begin to interact with already existing, routine networks in the city. As such, we can distinguish two kinds of assemblages: first, the professional planning system within Rotterdam, comprised of formal planning institutions shaped by four decades of urban renewal and compact city policy and second, the community-based civic initiatives for physical interventions in the urban fabric of Rotterdam. Planning routines in Rotterdam, and the involved professional planning institutions, are no different than the assemblage sketched in the first paragraph, constituted of housing corporations, the municipality and national government, developers and urban designers around extensive neighborhood reconstructions and inner city projects. This assemblage that has been much longer in existence, has stronger ties between its component parts, and is thus perhaps more effective in maintaining its own existence, than the assemblages that were shaped and created by the initiatives we described. But, as said, they do meet, and as they meet, they shift, they scrape and they struggle. The interaction between these assemblages takes place on all three levels of translation: on the first level in which the initiators interfere in the physicality constituted by the planning routines, on the second level by trying to interest

and enroll actors and elements from the planning routines into the network of the initiative, and on the third level by the struggle of acquiring a permanent presence in the physicality of the city.

First, the assemblages encounter because there is an overlap between them concerning the actors and factors involved in the processes of translation. Think for instance of the physical objects involved: the plot of the In-Between Garden or the building of Kaap Belvédère, that is used by the initiators, but officially the property of the housing corporation, and the park in which Singeldingen is located that is in ownership of the municipality. Overlap also concerns the people involved in the initiatives: sometimes professional actors are in support of the project because they are personally acquainted with the initiators or share their interest as being a resident in the same neighborhood (as was the alderman who supported Singeldingen), and sometimes as the civic initiators deploy their professional skills in favor of the initiative, as the landscape architect did for the In-Between Garden and the architect who designed the kiosk for Singeldingen. Also concerning Kaap Belvédère there is an overlap, as the municipality and housing corporation contracted the initiators at first for their art project. And there is also an overlap concerning the issues at hand in the initiatives. Looking backward, Kaap Belvédère did fit in the regeneration policy of Katendrecht that aimed, among others, at developing a cultural and culinary environment. The In-Between Garden fits within the municipal policy that aims at greening the city, developing more unpaved, green surface throughout Rotterdam. And Singeldingen also runs parallel with the municipal policy that aims at improving the connections between various parts of the city center by increasing the use and quality of public spaces, as it runs parallel with the regeneration policy in Rotterdam West as well.

Second, the assemblages encounter as the actors try to the interest and enroll actors and elements from the planning routines into the network of the initiative and vice versa as the professional actors try to model the initiative into a form that fits their routinely assemblage as well. Concerning the In-Between Garden, the encounters went smooth as the invitation for temporary use came from the housing corporation, and the professional actors involved were quite sympathetic towards urban gardening. However, aspects concerning the materialization (the fence and the bamboo stage) and the activities taking place were more controversial. Concerning Singeldingen, the municipality was supportive, but tried to hold on to their own plans as well concerning the location of the kiosk in the park, and a political intervention was necessary to overcome this controversy. But the municipality eventually also contributed significantly to Singeldingen as they arranged the permanent electricity connection for the kiosk, helping Singeldingen to become a more permanent element within the Heemraadpark. Concerning Kaap Belvédère, the temporary use of the building was allowed by the housing corporation, but becoming

permanent was more controversial, as this conflicted with the original plans for demolition. The housing corporation in the end was won over only after the initiators proved to be 'professional' as well, by writing the business plan, inventing a financial model for maintenance and taking on the notion of Immaterial Heritage. Thus it becomes visible how the initiatives not only hold on to their own original ideas, but were also changed by the encounters they underwent with the assemblage of planning routines. Moreover, even though it would have been much easier to adjust the initiative to the existing routines and the frameworks provided by the professional actors, in these cases discussion takes place precisely about these frameworks, regulations, plans. Or in other words: between what the initiators regard 'for the better' shown by their interventions, and what the professional actors regard 'for the better' shown by their plans, policies, regulations and frameworks. During these encounters, mutual anchoring takes place: public actors try to anchor the initiative to public policy, the initiators anchor to legal frameworks etc.

But not only does the displacement, drift, invention and mediation of translation between the assemblages create new links between actors that did not exist before. It also to some degree modifies the original two. (Latour 1999: 179). There is no transportation without transformation. (Latour 1996). We have seen how the encounters between the assemblage of urban spatial policy routines reshape the initiatives.

But now, thirdly, the question arises: is the urban spatial policy assemblage also affected and reshaped by the encounters with the civic-interference assemblages? Are the professional actors also affected by what they did? For the In-Between Garden it can be said that the initiative started as temporal use which remained temporal, as the building plans for the new apartment block were not reconsidered, and will be proceeded next summer. As such, the In-Between Garden did not change anything in the already existing plans of the housing corporation. However, it did make the housing corporation and the persons in the initiative more acquainted with each other, creating trust that something worthwhile can come forward from civic initiatives. This shows in the positive attitude the housing corporation now holds towards new initiatives that pop up in the neighborhood. The In-Between Garden also created awareness for urban greening at the housing corporation, that is now setting up greening projects throughout other parts of the city as well. The initiative of Kaap Belvédère did change something significant in the plans of the housing corporation, as the building was not demolished but eventually bought by the initiators. But overall, the initiative is seen as a happy incident, accidentally fitting nicely within the regeneration plans for Katendrecht, although not foreseen beforehand. Whether the encounters between the housing corporation and the Kaap Belvédère initiative did change anything in the routines and ways of working of the housing corporation and other professional actors involved in urban regeneration, remains a question. The same can be said about

Singeldingen. The initiative did change the plans for the location of a meeting place in the park, and the decision of the municipality to support Singeldingen with a permanent electricity connection is something that is certainly not routinely done. But the question remains what the professional actors have learned and whether their encounter with Singeldingen has caused them to reconsider any of their routines and practices. Solely based on these three initiatives, we unfortunately have to conclude that, although each initiative in itself did create an interesting new urban assemblage through self-organization, they on themselves did not cause any major changes in any of the planning routines practiced by the traditional urban policy assemblage and its actors. However, also in Rotterdam we see a re-shift in the activities of the municipality, housing corporations and developers, combined with extensive retrenchments and budget-cuts. Large scale redevelopments are not expected for the coming years. Rather does the municipality address the wish to improve the quality of the city in cooperation with residents, housing corporations and entrepreneurs as well. (Karakus and Bol 2010). This notion brings us to the final part of our chapter. Because, if these trends in spatial urban policy will continue, and more and more the initiative for urban renewal practices will come from civic actors, what exactly can be learned from the initiatives we discussed in this chapter?

#### A CITY UNDER APPROPRIATION: REHEARSAL SPACES FOR FUTURE GOVERNANCE

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>> In themselves, these initiatives did not change much in the planning routines of urban spatial policy. They remained incidental, within their own niche, being small, specific and contextual. Therefore it is close to impossible to derive any general conclusions from these experiences concerning their content. But that has not been our purpose from the beginning. What we tried to do in this chapter by describing these three initiatives in the way we did, was to create a new way of understanding such initiatives in relation to planning practice. We did so because the current shifts in stakeholders, due to retrenchments, governmental withdrawal and financial crisis, force us to consider a new actor in the field of urban development, one that does not work within the same routines as professional planning authorities do, but that develop their practices along the way, as things go. To create this new way of understanding we approached these projects from within and as interventions. Through following these initiatives closely while they gathered more reality through processes of translation, we have tried to show what such a perspective could offer. In this final paragraph we want to reflect a bit more on the meaning of this perspective and give some indication of what this might mean for the development of future planning practices.

First let's try to be more precise about the meaning of these examples. We could do this by seeing them as social-spatial equivalents of the desire lines or desire paths we know from public space. Maarten 't Hart, a famous Dutch writer, describes this term beautifully in the book *Desire Lines* (Olifantenpaadjes) by Jan Dirk van den Burg: "Where it is possible, we branch out, we cut corners, try to shorten our route. As a consequence of this, you see everywhere places where foot- and cycle paths created by the municipality are supplemented by perpendicular routes, forks in the route, small-unpaved tracks. What is noticeable is that the desire for these foot and cycle paths, which people make with such surprising tenacity, is not taken into account by local government. They lay out cycle paths with enormous loops and curves in them and what invariably happens? The corner is cut off. And quickly following the establishment of a new cycle path, you see a new, forking route coming off it, a desire line." (Van den Burg 2011). What if we see the initiatives we described and analyzed here as social-spatial equivalents to this? What if these initiatives are the manifestations of deep-felt desires of people to (re)connect with each other in new and meaningful ways? Such a view on civic initiatives opens up a whole new set of possibilities for understanding them and valuing them. They should not only be seen as a reaction against the officially planned space, because this view would inevitably lead to measures disciplining people back into the frames the officially planned space offered, or to a reconstruction of these officially planned spaces by the official planning authorities. Instead we would take these initiatives as starting points, as indicators of desired developments within an area. We would like to see them as the rehearsal spaces for working together, cooperating and collaborating, and finding new ways of organizing our urban society, as rehearsal spaces for future governance. (cf. Sennett 2012).

Second, we want to emphasize that these rehearsal spaces, these urban interventions, are gaining momentum and recognition. From the initiatives we have described in this chapter, other initiatives have already spread, and all over the city new (not necessarily related) initiatives for urban interventions by citizens are emerging. The In-Between Garden was only temporal, but on more and more places within the city such (more or less) temporary gardens are popping up. Moreover, the initiators of the In-Between Garden are now also initiating other urban interventions, such as a cooperative library, in the same neighborhood. Kaap Belvédère finds itself on Katendrecht amidst other cultural establishments that have grown from civic initiatives, such as Theater Walhalla and the Literature Cafe. And also Singeldingen is now spreading across the city as a method: two people that were associated with the initial Singeldingen, are now starting their own 'Singeldingen' in a different borough. But not only the initiatives themselves gain momentum. Also the attention for such initiatives is growing. This can be exemplified by different collections of examples which have been released during the last couple of years. The already mentioned books by Hajer and Urhahn *Urban Design* are examples of these, but you also



have the collection of ‘bottom-up initiatives in urban settings’ made by seven architecture institutes in the Netherlands (AIR 2012), or a collection called the Enabling City – bringing together all kinds of interventions in the public domain (Camponeschi 2010). A final testament to the growing depth and breadth of this development can be found in a series called the Community Lover’s Guide to the Universe. This series – in which five books have been published and another fifty-five are in the making – brings together all kinds of interventions of people who creatively form local communities across the globe. (Specht 2012). And it is not only in the domain of public space that we see such initiatives emerging. Whether it is energy (Van der Heijden 2011), health care (Nesta 2012), or welfare (Nesta 2012), we see people experimenting with new ways of creating, managing and valuing the things people in society need or want. For a long time such initiatives have remained under the radar. And still they are just local examples. But their meaning is much wider, as Ezoi Manzani, a social design innovator who is interested in bottom-up solutions to environmental challenges puts it nicely when he states: “Whilst these cases may be marginal in quantitative terms, in qualitative terms, they are extremely meaningful. In fact, they can be regarded as viable experiments in sustainable ways of living. Of course, they assume different significance in different societies and places, but their independent occurrences in such disconnected situations and locations raise the possibility that they, in fact, constitute a first set of spontaneously developed sustainable features. In other words, they are the building materials for developing sustainable alternatives to the unsustainable ideas of well-being, production and economy that dominate today” (Manzani 2011, p. 102). By collecting these examples, bringing them together in both books and real life, new connections and meanings are formed and the force of these combined initiatives grows. This will lead to new encounters with the planning assemblage as we now know it, changing both the initiatives and the planning assemblage along the way. While these encounters now are mostly ad-hoc it would be interesting to see if the planning assemblage would explicitly start to engage with these initiatives. What kind of practices could emerge from such encounters between various civic initiatives and other actors in urban spatial policy? What is it that can be learned from these rehearsal spaces for future governance?

What is particular about the strategies used by Kaap Belvédère, the In-Between Garden and Singeldingen is that becoming what they are – the outcome of the process of translation – is not done by talking, but through doing. By experimenting, trial-and-error and reflection an identity slowly emerged. And moreover, what Singeldingen, Kaap Belvédère and the In-Between Garden have become is the outcome of the many mutual interferences by the different actors enrolled. All initiators started with a normative vision on what would be ‘for the better’ according to their own perspective, but along the way, as more and more actors became interested and enrolled in the network, bringing in their own

visions on what would be 'even more for the better', the initiatives did transform into something that is perhaps not quite the same as the initiators thought about in the beginning, but something that is even more in place than expected. With this in our mind, we think the key challenge for professional planning actors is not to define frameworks and then try to fit initiatives back into them (what Maarten Hajer (2011) seems to hint at). Nor should they look for a generalization or institutionalization of the practices developed in these cases (as John Law (2009b) warns us not to do). Instead, we think the true lesson for planners is in the following. As we said in the beginning, when planning is regarded as an act of interference through physical interventions in space, all actors that engage in such practices can be regarded as spatial planners, whether these people are educated as planners or not, and regardless whether they act from a public, business or civic or a mixed perspective.

First, all these actors start with the articulation of a vision 'for the better' and try to act according to that vision.

Second, the challenge is not only to remain within one's own path, but to try to mutually interfere in each other's initiatives and physical interventions in space. Seeing what happens in the 'otherness' and make productive use of that.

Third, various simultaneous present trajectories can be bundled into new coherences grouped around meaning. It is up to all planners to engage in adjusting mechanisms of flow towards futures that are regarded 'for the better' – however contextual 'for the better' might be.

Fourth, after new urban assemblages have emerged, other actors can build further on these assemblages by adding up with new interferences and emerging networks.

This is where we think co-evolution takes place: between various assemblages of lines of flows, actors and factors, assemblages that are distinctive but overlapping at the same time, mutually interfering in each other's physical interventions. But can we already speak of such an emerging co-evolutionary practice or are we still miles away? We think that first signs are indeed there, as the necessity for new planning approaches is felt more and more among public, business and civic actors. First experiences of such a practice can already be found in some small stories like the ones we spoke about in this chapter. And from there on, the challenge is to watch very closely how interventions are developing, and to all co-evolve and learn from there.









# >> The Mobilities of Home

## Towards a new Planning for Mobilities based on an Actor-Relational Approach

Martin Dijst and  
Antje Gimmler

### INTRODUCTION

>> In the 20<sup>th</sup> century gradually cities seem to become the 'natural' habitats of people and firms. In 1950, only 29% of people lived in cities. Today this counts for more than half of the world population and it is expected to reach 70% by 2050 (Nature 2010). Cities are complex systems and in a constant state of transformation and they consist of networks of broader or more local relations that are difficult to understand in a static manner. As Jonathan Beaverstock c.s. (2000, 47) outlined "...cities are produced and reproduced by what flows through them (information, knowledge, money, cultural practices, for example) rather than what is fixed within them (i.e. their forms and functions)". Cities, thus, can be seen as gearboxes, which allow switching between flows that differ in speed. In this respect, Michael Wegener (2004) identifies significantly non-synchronous durations and speed of those that are part of cities: the very fast daily mobility flows of people and goods, the relatively fast change in employment and household composition, the long lifecycle of housing and non-residential buildings, and the very slow processes of changing physical networks and distribution of land uses. Actually this perspective on cities means that nothing is fixed, even not the built environment, and that flows do no stop at administrative borders. This flow perspective on cities is not very common in Dutch planning practice (Vromraad 2010).

Not only the habitat of people has changed and will continue to change within urban environments, but also the meaning of their territorial bases of their life. Over time the number of ways in which individuals and households can structure their daily lives as well as their life course has increased greatly in response to technological, economic, social and cultural developments. Bauman states (2000, 61): "...the world becomes an infinite collection of possibilities: a container filled to the brim with a countless multitude of opportunities yet to be chased or already missed." This enormous expansion of behavioral opportunities has been captured with the sociological diagnosis of individualization in Western societies, leaving the individual with the paradox of an increase of choices and at the same time with fewer universal preferences, a development that make decisions more difficult. These processes of individualization also influence the use of Information and Communication Technologies (ICTs) and results in dynamic and varied relations with people and places. Individualization and the detachment of place-based activities together make the background for Helen Couclelis' (1998) analysis that the postindustrial societies will transform into societies where activities will become more 'person-based'. In this respect, the postindustrial societies differ from the (pre) industrial societies in which the activities were predominantly 'place-based'; that is, they occurred at set times and in fixed locations. Because of these transformation processes, patterns of activities and movement will become increasingly fragmented and distributed over time and across space and in even



more fluctuating combinations (Hubers et al. 2008), a development that makes planning even more difficult.

Everyday life has been heavily affected by these transformations. Nowadays the number of encounters in cities is increased, also with help of various technologies as intermediaries. People's relational network has thus changed during history: The daily life in villages and cities in the pre-industrial era was dominated by social interactions and relations with known others (Lofland 1973), strangers hardly were met (Wellman 2001). In cities of the industrial era the use of public and private transport and ICTs increased the number and diversity of contacts with unfamiliar persons and places. In a superlative sense this is true for cities in postindustrial societies in which automobility (Urry 2004) and ICTs increase contacts exponentially. As Thrift (1999, 302) outlines: "The world is made up of billions of happy or unhappy encounters, encounters which describe ... multitudinous paths which intersects". These numerous encounters comprise contact with members of the personalized social network (Wellman 2001) as well as the fragmented, temporary, messy, but sometimes intense 'fluid' contacts with other people, animate and inanimate things in public life (Wittel 2001, Sheller and Urry 2003). Increased mobilities and activities expose persons to other behaviors and influence their attitudes, behaviors, emotional and physical well-being (Matthews 2008, Kwan 2008, McQuoid and Dijst 2012).

In sociology, urban life has always been a central topic as part of the influential master narratives about modernity and rationalization. The recent increased physical and virtual mobility of the post-industrial cities and its consequences for the individuals and for urban planning, though, has not been fully comprehended yet. In classical sociological urban studies the dual development of social mobility on the one hand and growing social inequality on the other is often supplemented with a portray of the city as habitat for individuals that are able to cope with complexity by strategies of displaying anonymity that also comprises the more negative blasé attitude of offensive disinterest in other people (Park 1925, Simmel 1995). The flipside of the complexity of cities, as many of the influential diagnosis of modernity have outlined, is loneliness, anonymity and solitude on behalf of the individuals and loss of social cohesion on behalf of the community (Putnam 1995). Nowadays this diagnosis has become even more relevant. The physical and virtual mobile world and the relatively high density, diversity and dynamics of public encounters in cities can be experienced as very stressful. Bauman (2005 2) portrays a person's life as a 'liquid life', "...a precarious life, lived under conditions of constant uncertainty". So far, we do not have much understanding of how persons cope with (un)familiar contacts in their living environments and their passage through urban environments under the conditions of constant ICT use and increased mobility. What we do know is that also under conditions of mobility people are attached to 'feeling at

home' in places, a feeling that usually is expressed by being familiar with these places, by feeling safe, comfortable and connected with the world around them. Due to the increasing mobile society and urbanization there might be a bigger need for feeling at home than ever (Duyvendak 2011). Human beings might find new and different ways of feeling at home within the overall setting of a highly mobile urban environment. Planning should pay attention to this issue of social sustainability in order to stimulate social integration, cohesion and well-being. Also from an economic standpoint the planning of urban structure has to take the well-being of individuals into account. Quality of life becomes a central factor for the attractiveness of cities and their economic futures (Morais/Migueis/Camanho 2013). Social and economic factors mix here with transport, travel and urban environment as relevant conditions for quality of life. As mentioned in the introduction to this volume, De Roo and Boelens state that the above mentioned processes of increased mobility and complexity are considered as evolving more or less autonomously and in various directions. As a consequence, planners are not able to control or to plan these developments but can at best respond, anticipate or adapt to these changes. A relational approach to planning could be the appropriate alternative to the often used physicalist approach (Healey 2007). The relational approach is largely based on some conceptualizations deriving from Actor-Network Theory in which the basic assumption is that dynamic relations between human and non-human elements in a network govern social life. However, this is a rather methodological interpretation of a relation and not a substantive one. In an increasingly mobile urbanized society with multitudinous consecutive fluid encounters the need to understand what people search for in relationships with human and non-humans and how they manage their relationship should be put central.

The aim of this Chapter is to develop a substantive relational framework for a better understanding of relationships between people and places. To that purpose time geographical concepts will be integrated with insights from practice theory, which is an umbrella term for theories that see practices at the core of social relations and emphasize their plurality and heterogeneity rather than being one homogeneous singular praxis. In this sense practice theory is closely related to philosophical pragmatism that focuses on practical outcomes of knowledge and behavior (Gimmler 2013). Both theory strands will be used to integrate elements from philosophy of emotions and from philosophical anthropology in this chapter in order to frame a better understanding of human beings under mobility conditions.

## TIME GEOGRAPHY AND RELATIONAL APPROACH

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➤➤ Society is composed of uninterrupted and networked paths drawn by people, other organisms, and inanimate entities through time and space. The idea

of the crossing of paths in time and space is central to the time geographical framework (Hägerstrand 1970, Dijst 2009). Hägerstrand developed time geography to improve the quality of life of people which refers to for example the feasibility of carrying out desired activities, travel time efficiency and travel distance efficiency (Ritsema van Eck et al. 2005). Originating in Hägerstrand's 1970 landmark publication, 'What about people in regional science?' this approach understands everything in the world as in 'movement' even when physically stationary because of the passage of time. In essence time geography presents a materialistic interpretation of the world: *"We are movers of matter all the time, just like water and wind"* (Hägerstrand 1995, 44). Corporeality of human beings, equipment, and materials leads to limitations in the movement and presence of these material entities. In time geography, participation in activities is not a matter of choice, but is subject to three types of constraint: capability, coupling, and authority constraints. Capability constraints embrace biological, mental, and instrumental limitations and affordances. People encounter coupling constraints when they come together at a certain time and location with equipment and other materials for joint activities. Authority constraints regulate the access of individuals to places through social rules, laws, financial barriers, and power relationships (Dijst 2009). These constraints determine the level of flexibility a person experiences in moving between primary activity locations or bases. Reoccurring activities (such as sleeping, bathing, working or studying) take place at bases within relatively fixed time frames. The amount of time available to travel between base locations or to visit other activity places is known as the time interval or time window (Ritsema van Eck et al. 2005).

These constraints of a certain time window define a three dimensional 'prism' which embraces the set of opportunities for travelling to activity places and to participate in activities. The projection of a prism on a map designates the 'potential action space' or accessible area. Each step taken in space and/or time transforms the prism into a path. Each person carries around an imaginary prism like an air balloon, which expands and contracts under the influence of changes in the capability, coupling and authority constraints and behavioural decisions concerning the course of the daily path. Time geography shows us that in two respects these spatio-temporal contexts or situations are dynamic. First, when a person is stationary in a certain physical context other people and mobile objects and natural processes (e.g. sunrise, sunset and change in weather) may move in and out a person's range of sensory perception. Second, while an individual is moving in space, physical contexts shift and alternate as the individual changes position over time. Based on these double-dynamics a person gains experiences, emotions and associations that inform interpretation of and behaviour in future situations (Dijst 2009, McQuoid and Dijst 2012). A relevant supplementary theoretical framework for time geography is Actor-Network Theory (ANT). *"Modern societies cannot be described without recognising them as having a fibrous, threadlike, wiry, stringy, ropy, capillary character that is*

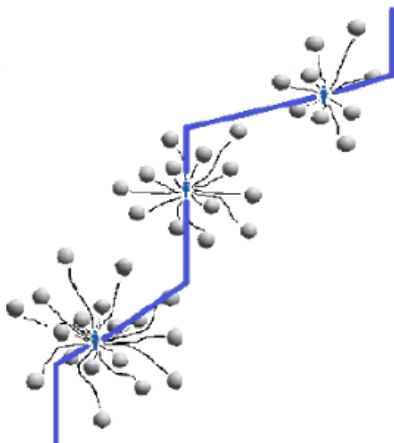
never captured by the notions of levels, layers, territories, spheres, categories, structure, systems" (Latour 1997, 2). ANT as developed by Latour (1999 2005), Callon (1999) and Law (1993) offers a relational framework for the social sciences. It adds the dimension of spatial relations and materiality to the temporal dimension of time geography. ANT sees the world as composed of a multitude of interactions between actors, human and non-human in nature, which are assembled in a place (Latour 1999a 1999b; Murdoch 1998). This assemblage is called an actor-network. The supporters of 'After ANT' have detached the network concept since it puts too much emphasis on a structure that is immutable (Callon and Law 2004). They rather prefer terms such as 'fluid' (Mol and Law 1994) and 'gel' (Sheller 2004) that were previously associated rather with flexibility and change processes than with the concept of network. In reality different types of associations of relations exist (Callon and Law 2004, Brown and Middleton 2005, Amin and Thrift; 2002). Although Hägerstrand's classical time geography assigns no intentionality and other human features to things, the material existence and the importance of developments in paths are principles which ANT shares with time geography (Schwanen 2005).

According to Latour (1999b, 18) it is not important: "... what an actor does .... but what provides actants with their actions, with their subjectivity, with their intentionality, with their morality". In addition Latour (1999a, 182) states: "Action is simply not a property of humans but of an associations of actants...". In other words not the actors are important but the relationships between them; for example, the use of a mobile phone by a train passenger that is initiated by an alert call that has been set up before. The machine to person communication initiates a chain of actions: in some people the call evokes resistance, which calls for a comment or a move to another carriage. This example also could be used to illustrate what Latour (1999a) calls a translation from one actant to another. It is the result of the interaction and communication between human and non-human actors and both types of actors can cause changes of the goals of networks, but also of feelings and thoughts. Artefacts should be understood as cultural-material hybrids and not just as solid material things outside the social and the other way round, the social actor is a materialized one and not just coping or acting instrumentally and intentional with the world of material things.

Another feature of ANT/After ANT is that within interaction and communications networks, no change of scale occurs. Latour (1999a, 18): "Contexts ... flow locally through networks" (see also: Pred 1977, Massey 1991, Latour 1999b). He means that all kinds of positions that people, other organisms and things take in social, natural and spatial structures can be investigated on the same level. ANT favours a flat ontology. Based on networks of relationships between actors, space is not seen as something absolute, i.e. as a container for human activities, such as in classical time geography. In contrast, space is seen as a spatial sphere of influence, as a system of relationships (Harvey 1969, Murdoch 1998). As a

consequence, distance is not expressed in meters, but in functional terms. ANT tries to understand how various material and non-material entities form and act as a network or dissolve but is reluctant to directly pose the why questions behind these processes. This is one of the major criticisms on ANT, whether it can address the intuitions of actors of having intentionality and agency that is not fully explicable by 'networks' (Dijst 2006). The understanding of cultural-material hybrids explain well how humans 'make sense' of their place. Humans 'value' space and interaction with space (as cultural-material hybrids) do give meaning to space, turning it into place (having added identity to it). From the point of view of human beings the network relations contain an emotional and intentional compound. Bruno Latour is not abandoning this dimension of intentions and emotions but doesn't think that subjectivity explains social networks. In this reluctance of explaining complex hybrid networks as a result of human intentions and agency, we follow Latour, but we add the dimension of emotions and intentions as one possible result of a network. Individuals' reactions are part of the network and in our approach to emotions and feelings we look at the individual as centre of the network because we are interested in this particular part of the relation.

The often-applied notion of 'embodiment' can help to address this issue. Hägerstrand's view on the world is a materialistic one where the corporality of a human being is reduced to a neutral vessel carrying a person along a path (Rose 1993). However, the body shows in its appearance biological traits (e.g. race, gender, age, and weight) and cultural or lifestyle expressions (e.g. wearing clothes, glasses, jewellery, and crutches) which all have a social meaning. Encounters between the biologically and culturally inscribed individuals and other entities in the environment are possible through the sensory capacity of the body (sight, sound, touch, taste, and smell) and its physical engagement with its surroundings. In this 'embodied ontology' the body is the starting point for understanding how individuals experience the world and emergent feelings about themselves and other bodies, acknowledging corporeal physicality as the basis of 'being in the world' (Hubbard 2005, Davidson and Milligan 2004).



**FIGURE 6.1**  
Double dynamics while being  
mobile.

These theoretical approaches can be connected with time geography. On his dynamic path through time and across space, which represents in time geography a relation between the individual and his activities at the destination, a person is bodily experiencing continuously the dynamics of relationships with all other material and non-material actors (Figure 6.1). Humans always experience this double-dynamics of these relations. For example, a cyclist on her road to her work can be in connection with a memory about a sick relative, her bike, bicycle lane, other cyclists, the weather etc. (Westeneng 2012). These relational situations are never static or are in rest but always in becoming (Anderson 2009).



## EMOTIONS AND ENVIRONMENT: FEELING AT HOME

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>> Embodied experience within an environment has been the topic for numerous social and philosophical theories. In the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century it was the city and urban life that draw the attention of theorists interested in the consequences of modernisation. From the various theories that in the beginning of the 20<sup>th</sup> century tried to understand urban life it is the critical theorist Walter Benjamin (2002) who besides Georg Simmel, developed an understanding for the material side of experiences in the city. An ideal type figure like the 'flaneur' is the result of a city that celebrates commodities and where excitement and fashion define the engagement with the environment (Benjamin 2002, 338f.). While Benjamin thought of the flaneur as a particular historical figure that illustrates the beginning of the modern consumer age, in the current idea of 'flaneur planning' that had been recently developed in the Netherlands (De Roo 2013), it reflects a need of humans to see and be seen while walking. The flaneur planning looks at the physical environment as a background that is not only experienced by the user or the visitor functionally but can also evoke all kinds of emotions. These emotions determine the perception of well-being and the physical environment. Thus, identity, body and self are in intimate intertwinement with the city and its infrastructure. A contemporary sociologist who emphasises the bodily and affective involvement of human beings into the spatial surroundings and in architecture is Richard Sennett (1990). From his point of view the city challenges the ability of human beings to cope with differences and at the same time to develop a sustainable and robust identity. What is at stake in all these modern narratives about the city is that belongingness as well as alienation are consequences of the dynamic setting of individual capacities, social relations and material framework. In the following we would like to outline the kind of background presuppositions about the affective and emotional dimension of this interplay between the individual, the social and the urban infrastructure that are fruitful in order to contribute to a conceptualisation of relational planning.

After having introduced time geography and ANT as cornerstones of relational planning we will use in the following elements from so-called practice theory, from philosophical pragmatism and Plessner's anthropology. While classical social theory show a "systematic tendency to marginalise emotional-affective phenomena as well as space" (Reckwitz 2012, 242) the three mentioned approaches allow to conceptualize the interplay of human beings and urban environment on the background of an acknowledgement of the practices that constitute emotions, affects as well as space. Belonging and feeling at home is from this perspective a practice and not purely a mental or emotional state. A first step is to conceptualize the involvement of human beings into the environment other than purely functional and instrumental or as in classical philosophy as purely contemplative (see also Hägerstrand, ANT). Interaction and encounters of human beings with the environment are not only steered

by purposive and instrumental action, nor are they disinterested observations, but they are influenced by the emotional qualities that arise in interactions and encounters that are part of practices. Our intentions and the purpose of our actions are thus interwoven with feelings (Joas 1996). A woman e.g. might choose unconsciously a different path along a row of houses because she feels safer, although this walk will take a bit longer. That architecture and urban planning is a way of creating symbolic power and even controlling the actions of their inhabitants is neither an original nor an innovative insight. But how exactly does a building, a place, a hallway or a parking lot affect human beings? How to conceptualize emotions and feelings within these settings? Here a second step is necessary. Understanding the relation between human beings and urban environment rather as fluid practice that includes structures and dynamic relations opens the view on “embodied, materially interwoven practices centrally organized around shared practical understandings” as Schatzki (2001, 12) in his influential anthology on the ‘Practical Turn’ outlines. Emotions and affects are interrelated with artefacts, it is the body that is walking a street or a tunnel, is sitting on the lawn or on a chair, or is standing in the underground or an open market place; it is the body that is feeling anxiety or joy. In philosophy, psychology and anthropology the phenomenon of emotion, affect and feelings, the connection to the body and the environment has been notoriously difficult to capture and consequently many different approaches exist. A different and non-dualistic conceptualisation of the body-mind relation is necessary and is not achieved with the mere inclusion of a psychological perspective. As already one of the first modern theorists of emotions, the pragmatist William James has highlighted, it is not very fruitful to think of an emotion as something that is only a private mental state (James 1977) without the body involved. Such subjectivism would only repeat the problems theory of mind has struggled with since its dualistic formulation of Descartes. Subjectivism has two sides: on the one hand does it not explain why my feelings can be understood by others and on the other hand why these feelings and emotions emerge in a certain situation, that is how we connect with the environment.

In accordance with the pragmatists also Heidegger and later Sartre positioned feelings and emotions within a practical relation of human beings and the world. Heidegger conceptualized moods (‘Stimmungen’) even being an existential apriori of being in the world (Heidegger 1979, 130ff.). Mood, for Heidegger constitutes a sense of belonging to the world, which is phenomenologically prior to cognition and actions. We follow Ratcliffe, who develops a conceptual framework for feelings that “*is a relation between body and world, rather than a perception of one in isolation from other.*” (Ratcliffe 2009, 190). He uses Heidegger as well as Husserl and the French phenomenologist Merleau-Ponty for underpinning that ‘feeling something’ should be understood from a broader attachment of the human being and its body to a certain situation.

All these theories gives us hints of how to conceptualize feelings and emotions different from traditional theories and Ratcliffe's notion of feelings is useful because he enables us to overcome the impoverished conception of emotional experience in the subjective consciousness and its emphasis on propositional attitudes. However, taking Heidegger's famous approach to feeling as an existential mood this conceptualization of feeling shows from our point of view a lack of bodily involvement. Though Heidegger didn't developed a philosophy of the body he tries nonetheless in his later writings on dwelling (Heidegger 1971) to situate moods within the material environment and tries in this way to establish an attachment of the body to the world. His philosophy of dwelling remains though abstract and doesn't account for the specific attachments human beings are able to entertain in different situations. The reason for this lack of dynamic belonging is that Heidegger understands dwelling as an existential mode of being in the world that has its foundation in 'cultura', that is long-term interactions with places and buildings. Heidegger could be accused for reifying a certain type of attachment of the body and the human being to the surroundings as 'the' foundational mood. For an understanding of the different types of feelings of belonging that occur in modern mobile societies, Heidegger's theory leaves us with a diagnosis of mere loss of dwelling and feeling at home. New forms of practices that are in the centre of practice theory and pragmatism are not in the scope of Heidegger's existentialism.

The analysis of experience the pragmatists William James and John Dewey offer also directs us to the practical intertwinement human beings entertain with their environment. James called experience a 'double-barrelled' (James 1977 172) term, already combining the perception and feeling an individual has with the perception and feeling of something. Dewey (2008) utilised this notion of experience for his understanding of the everyday life involvement of human beings in practical interaction with its surroundings. Habits and tradition play a decisive role in how human experience is played out in certain practical situations, thus explaining why emotions and feeling could be shared with others. But situations are also open for change, transformation and creativity as part of the human beings competences to adapt in an experimental way to new situations. This combination of past experiences with present challenges and with future adaptations and solutions is one of the main characteristics of the pragmatic epistemology of everyday life that will be used in the following to understand the different ways and modes of 'feeling at home'.

The more sociologically informed conceptualisation of 'feeling at home' of Jan Willem Duyvendak matches this pragmatic epistemology and provides an analytical framework for understanding the differences and often divergent evaluations that are connected with 'feeling at home' under conditions of highly mobile societies. Duyvendak's background for the investigation into the 'home feeling' could be found in his interest into the political imaginaries that form policies of migration, multiculturalism and nation building in modern

Western societies. As a reaction to globalisation and increased mobility in modern societies normative evaluations of the type of transformations and the connected social and cultural consequences differ tremendously. Though most of social theorists agree upon that the increase of mobility had influenced our relation to place and space, they either diagnose an erosion of connectedness to places or praise a new cosmopolitan attitude towards being at home everywhere. As Duyvendak posits "It is here, I think, that the debate becomes truly interesting: changes in mobility have evidently had an enormous impact on place attachment, on what places mean and on perceptions of who 'belongs' where." (Duyvendak 2011, 15).

He proposes an analytical framework to grasp the affirmative and negative normative presuppositions that guides the evaluation of these diagnosed changes in the ways people 'feel-at-home' in different places and in mobile situations as in airports or while travelling. The framework is built upon two different sets of categories: positive or negative evaluation of mobility and generic and particular places. By crossing these categories, Duyvendak describes four types. In line with Heidegger the first type of theorists see the increase of mobility in modern life as negative. From their perspective individuals in modern societies lose the ability to establish thick attachments to places as such. In Duyvendak's words these researchers believe that people are 'lost in space' (Duyvendak 2011, 14) because real places are not available any more. Researchers such as Gupta and Ferguson (1992) presuppose that places are those familiar environments that consist of close relationships between family, friends and work place as well as close connections to the surrounding infrastructure, be it the family home or the well-known pub. The definition of place as 'space plus particularity (familiarity, duration and social, cultural and personal attachment)' in opposition to pure space as 'merely generic' and as a 'non-place' (Marc Augé) is taken for granted in this view. Social theorists, who believe in the 'lost in space' metaphor, think that no strategies are available to cope with these developments. The same polarity of space and place is accepted of the second type of theorists. They diagnose that people are chronically mobile, but they adapt with a strategy to be at home also at generic places – typically staying on travels in a hotel that is member of one of the international hotel chains, being impersonal but recognizable for its convenience and standardisation. These travellers will not feel 'at home' but they won't feel lost either.

The third position Duyvendak highlights in his analytical framework is that of the revitalisation of particular places, even under the conditions of mobility. One way is the nostalgic strategy of anchoring mobile individuals in real places, such as the family home. While mobile work life, that is e.g. commuting, business travels, project work in different companies and jobs that are literally on the road like truck drivers, is from this perspective experienced as having deteriorating effects, the family life is seen as a haven that provides safety and the necessary roots, for example in small villages with strong social cohesion

(Bellah 1996, Putnam 1995). This re-evaluation of the 'real' home, Duyvendak calls the position of the "defensive localists" (Duyvendak 2011, 15). The fourth position he calls "elective belongers" (Duyvendak 2011, 15). Here mobility is seen genuinely positive and people are able to develop strategies to feel at home and to attach to situations and environments on the move, they develop "mobile home strategies" (Duyvendak 2011, 15). It is at this point, Information and Communication Technologies (ICTs) become important. Usually seen only as instruments and media that contribute in an even more negative way to the dissolution of social cohesion and connectedness to spaces, ICT's can also play a positive role in mobile home strategies. The same situation of mobile phone use can be evaluated quite differently: a woman walks the street and is engrossed in a conversation with her sister over her mobile phone. She seems to be neither present in the situation nor attached to the place. But she is attached to her sister and thus actualising the family network. While neglecting the co-present pedestrian she is in contact with her family and reinforces her belonging to her home with her family while walking in a city she is not familiar with. Being connected and attached to an urban environment, to a place, be it generic or particular, has also to do with the communication technologies in use. ICTs allow us to travel with our network and family virtually at hand.

The reconfiguration of public spaces is one of the most exciting consequences of the ubiquitous use of ICTs in modern life. Driving by car, going by train, walking in a city or sitting in a café – these are situations that are for a majority of people connected not only to orientate themselves within the spatial setting and to the co-presents but also to navigate within a virtual presence that is established with a smartphone and the mobile internet (Arminen 2010). The photo gallery accessed via a mobile phone might be used to keep a lifeline to the private network and to home while travelling by train. In this sense ICTs play the same role as other material objects, which enable specific emotional relations. Such is the case for train commuters, as a study about a group of commuters in Denmark shows (Jensen 2012). Within the routinized practice of commuting people create intimate space, meaningful time spent either by listening to music or talking to each other. What at first sight might occur as 'dead time' in a 'dead place' shows to be highly affective and part of the identity construction of commuters. ICTs often play a role in structuring the travel (e.g. by setting alarms). They enable a kind of private bubble in the public space (e.g. with earphones) or are part of conversations, both with co-presents and with those not present (e.g. news or Facebook). 'Feeling at home' becomes thus more fluid and not fixed to one place. In the following an anthropological understanding of how human beings deal with these different interactions will contribute to probe into the variety of encounters and experiences in urban life.



## PLESSNER'S THEORY OF POSITIONALITY AND URBAN LIFE IN PRACTICE

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>> Like time geographers and practice theory, also philosophical anthropologist recognizes the fundamental material basis of life in which human beings and other organic and inorganic entities take up room in absolute space and are positioned toward each other. An important representative of this philosophical perspective is Plessner. In 1928 Plessner wrote *Die Stufen des Organischen und der Mensch* (The Levels of the Organic and Man) (1928/1975). In this work he discusses the positionality of organisms as boundary-setting entities by which plants, animals and human beings use different methods to control their relations with each other and the environment. As philosophical anthropologist he tried to understand the relationships of humans with each other, the world and others from a biological perspective (Fischer 2009). Regrettably his work has been hardly translated into English. However, his ideas can be very useful for understanding person's management of relation with their environments and belongingness in urban life (Dijst 2013).

Plessner states that human beings are facing an 'ex-centric positionality'. Plessner (1928/1975, 292) argues: "He not only lives and experiences, he also experiences his experience". This can be understood by realizing that all of us when we talk, write or gesture we simultaneously hear our voice, see our writing or witness our behaviours (Mishare 2009, 135). This ex-centric positionality involves human beings continuously experiencing a swing between his centred position – being inside the body in the centre of one's own internal world, and his ex-centred position – being outside his body at a distance. This ex-centric positionality enables people to transcend the here and now and to adopt the others' perspective on oneself (Fuchs 2005, Lindemann 2009). For example, a man can think about buying a new car and imagine how he would like it and how others would react to his new car. In other words, this transcending ability enables people to reflect on the relationships with themselves and other animate or inanimate things and to change these according to the expectations of others (Heinze 2009, Lindemann 2009).

Due to this ability to adopt the reflections of others on oneself people experience a fragile equilibrium in which they see themselves as being "...highly vulnerable and at risk" (Heinze 2009). In line with practice theory we could say that they do not feel belonging to a situation or a place, but that they with practices constantly establish equilibrium between the inner and the outer. To escape this unbearable existential experience people have to create possibilities to shape their life (Plessner 1928/1975). These possibilities to regulate their relationships with inanimate and animate things in the environment can take the nature of positioning oneself in time and space towards other entities and of drawing boundaries between themselves and these other entities. In Plessner's philosophy (1928/1975) the meaning of a boundary is that it allows the person, and also other animate things, to separate the familiar from the unfamiliar. A boundary is seen as a relational sphere in which the person assembles familiar

things, people and cultural means to manage his often fluid unfamiliar relations with the world around him. In this boundary sphere, which is open and mouldable and never fixed or finished (according to Jones 2009), assimilation and dissimilation takes place between interacting entities.

Especially in the urban environment in which the density, diversity and dynamics of public encounters are high the ability to transcend oneself by adopting the perspective of others, and by reflecting on one's relations and acting accordingly, can be experienced as very stressful. City life is full of sensorial impulses. Especially people who are sensitive for that feel everything around them very strongly which makes them feel uncomfortable, not feeling at home. These experiences can have large negative implications for activities people participate in and trips they undertake. For example, the following person who answers on the question what he wants to do on a day off (Berkers 2011, 72): *"What I like to do, briefly summarised, is being at places where it feels good. And for people who are sensitive there are not many. It is very place-specific, but also people-specific. When you are a sensitive type and you have to stay in a room with 30 people and one has energy that is totally out of balance, than it is very difficult to shield yourself off from that, while staying open to the other. That is the most difficult. You can close yourself off, but then you close yourself off completely"*.

In daily life, while people are mobile they position themselves continuously in respect to other people, and animate and inanimate entities in successive spatio-temporal situations. To protect the self from others in these situations, they choose a position in the urban environment by selecting or avoiding certain places, routes to reach these places or time windows for participating in activities or travel. An example, can be given by a spiritual woman visiting the inner city of Utrecht (Berkers 2011, 71): *"I don't like to go to Hoog Catharijne [indoor shopping centre in Utrecht], there is a very heavy energy. I feel ahh [sighs] when I leave there. That has to do with energy, it is very busy. I'd rather not go grocery shopping, I find it way to busy and that has to do with a lot of things, with heaviness and with materiality. When I go shopping with the boys [her sons] I always say: you have a look first. Like the Sting [shop], that is such a warehouse. It tires me immediately when I walk in, I avoid it. Loud music fills the space energetically and the people who enter bring energy with them"*.

Although from a different angle, similar experiences has a single, poor mother living in San Francisco who visit's San Francisco's downtown shopping district (McQuoid 2010, 106): *"[M]y kids are excited 'cause they never see all these beautiful things and stuff. And they want to touch everything. And I'm like 'Don't touch anything!' And they [store employees] can see that. They're probably thinking, 'oh, she's poor and ghetto' [...]. I don't like going to those places. We wanted to see Bloomingdales 'cause it was brand new. You know? But I'm not gonna go back there again 'cause I can't afford anything in there. And just looking around they think that I'm gonna. . . I have a feeling they think we're shoplifting. Like we're being watched."*

To avoid having these experiences with visiting stores and shopping centers these women for very different reasons protect themselves by giving instructions to their children but it also leads to less frequency of attending these activity places. Alternatively, there are other places in the urban environment where people enjoy being present. It can be in a person's interest to invite transgression of this boundary in order to encourage positive emotional experience, as in the excitement some night-life consumers seek in spontaneous interaction and 'losing oneself' with music, dance and intoxication, for example (Hubbard 2005). This transgression of boundaries is also showed in the following quote (Berkers 2011, 71): *"There is one place where I like to be, where I used to go a lot when I was younger, the cloister garden of the Dom [church in the center of Utrecht]. That is because my father used to be a sculptor and they restored it. I used to come there quit often and I already thought it was so peaceful. I would go and sit there and sketch a bit. That is the only place in a city where I could become calm"*.

Not only the choice for destinations of trips is controlled by relational needs of people for other people, products or places, but also the choice for transport modes is influenced by it. A car-owning single mother in San Francisco expresses her feelings of discomfort using public transport (McQuoid and Dijst 2012, 32): *"[I]t's just really rowdy and a lot of noise. Lots of people. It's very crowded and they're very rude. Bumping into you. And they have all their bags. And I don't want their bags touching me. You know, they come from the market and they have their little fish or their food. [ . . . ] No I don't like the bus, I hate the bus."*

Another carless woman in San Francisco has similar experiences, but she doesn't have any alternative (op. cit, 31-32): *"When you don't have a car and you go grocery shoppin' and you're strugglin' with the bags on the bus. Oh, it's so embarrassing! And then the bus driver – you have to have him wait for you. And everybody else is on the bus and you're trying to grab your stuff and get on the bus and they're lookin' at you. The bus is on you. Man! There you go again, everybody's lookin' at you like, 'I wish you'd hurry up!' Ya, I don't like that."*

Also the experienced and enjoyed atmospheres at for example a friend's place or a performance in a theater or concert hall can have an impact on the preferred needs for transport mode. This can be illustrated by a man's experience with mobile phone and the way it damages his specific public train experiences after having had a joyful meeting with good friends (Dogterom 2011, 6-7): *"To me, the extent to which it [ICT use] is annoying largely depends on my mood and also the moment of the day. [...]. For example, in the evenings, when you are sitting in the train quietly, lovely, coming from somewhere. For example, I travel regularly from Utrecht, coming from friends. It's about 40,50 minutes by train [...]. Not necessary to change train, quiet environment. But then suddenly three people enter the carriage, talking on their phones, really those conversations you don't want to hear"*.

Experienced discomfort in public transport might be a reason for not taking public transport. But also fear is often seen as an argument by especially elderly people depending upon public transport because they can't drive cars anymore. Fear of being mugged is one of the major reasons (besides infrastructure problems) in Denmark and Canada why seniors avoid public transport with negative implications for their daily lives (Fisker 2011). Instead of choosing or selecting places and transport modes in the urban environment, another chosen strategy may be to envelope oneself in an open and mouldable boundary sphere of familiarity. Various objects might be chosen, like clothes, mobile objects, or accompanying people (for example see McQuoid and Dijst 2012, Longhurst 2001, Lofland 1973/1985). A woman in San Francisco is creating a 'smooth ride' for herself on the bus (McQuoid and Dijst 2012, 32): *"I have an iPod on, see? When I'm on the bus and stuff I got my iPod on. 'Cause I don't got to hear no body talkin' and they bull\*\*\*\*[...]. Or somebody get on the bus and they just got out of jail, or they fit to go hussle, what b\*\*\*\* they knocked, or – it's just a relief. And just relax. And have a smooth ride all the way where I need to go without me hearin' anything but my music."* By wearing earphones this woman is also sending a visual signal that she does not wish to interact with other people. With another object but with the same aim another woman in San Francisco is wearing a large, black puffy jacket (op cit, 32): *"I will not change the color of my jacket. I will not change how big it is. It's like my blankie, you know? And even when it's hot outside I still take it with me 'cause that's like my blankie. I don't want to change to something new even though one of my coworkers bought me a brand new jacket. It's black, but it's not puffy like the one I wear."*

The jacket feels for her comfortable and she thinks that people will have the impression of her that she looks tough in the jacket and are less likely to interact with her.

Not only in daily life but also over the life course people may choose residential environments to protect themselves against relations with unfamiliar or undesirable other people or entities, for example by buying a house in a gated community. The positioning and development of residential boundary spheres are intended not only to protect but also to open oneself up to preferred environmental elements and to transgress one's boundary to encourage positive emotional experiences. This is clearly showed by a person living in a small Dutch village, called Beegden (Beljaars 2011, 70): *"That is just nice about the village; the details make the difference. For instance just now, because I'm just sitting here and then I heard a friend talking just outside the door, because: 'how did it go?' And from the conversation I understood that he had undergone surgery and then I think: that is just great! That you just come across someone right on the street and that someone just asks: 'how did it go?' And that the other also tells about it. (...) That is just great! The world goes by at your eyesight and: 'hey, how are you?'"*

However, this experience of village life is not for everybody the same, some appreciate the social contact; others want to enjoy the quietness and landscape, like the following woman also living in Beegden (Beljaars 2011, 70): *“For me this is just a piece of land on which my house is located, on a nice piece of land close to nature, that comes in handy while walking the dog and to relax. Aside from that, I might as well dwell in Horn if there would have been a house with such a great location as this one has. Or in Swalmen, or in Neer [nearby villages]...”*

These examples show that people always position themselves and apply boundaries to manage their relationships with other people and animate and inanimate entities in their environment. Emotions and affects are an intrinsic part of these relations. In doing so, humans manage a sense of belonging to the world which is seen as fundamental in understanding human life.

## CONCLUSIONS AND IMPLICATIONS FOR PLANNING

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>> Urbanization, individualization and mobility can be seen as major driving processes causing fundamental changes in social encounters between people and their cultural expressions, like clothing, arts, and city buildings. Due to the increase in the numbers and diversity of unfamiliar contacts, especially faced in cities, people experience a precarious, uncertain and stressful life (Bauman 2005). Based on these developments, Duyvendak (2011) asks whether and how ‘feeling at home’ takes place under these modern conditions. He states that there is a bigger need than ever to feel at home. Being and feeling socially connected, which refers to having a sense of community identity and belonging, respect and engagement with people (McKenzie 2004, Woodcraft et al. 2011), is one of the core issues of social sustainability (Colantonio 2007, Bramley et al. 2006). In a mobile society feeling at home goes further than the residential environment. In line with the core objective of sustainable development (Omann and Spangenberg 2002) it should be in the focus of urban and infrastructure planners that individuals are seeking a meaningful life and that the spatial and architectural structure should provide such opportunities.

In this contribution we have made a strong plea for a planning for mobilities in which the mentioned social dimension is fundamental and complementary to the well-served environmental and economic sustainability issues in mobility and other policy fields (Colantonio et al. 2009, Vallance et al. 2011). From a relational perspective we have shown that change of places and times while being mobile is by definition accompanied by change of contexts. By each step scenes succeed and change by character, which influence encounters and experiences of these scenes. In order to manage contacts with unfamiliar others people position themselves in contexts in which they feel comfortable and/or apply imaginary boundaries to protect themselves. In this manner they create



situations in which they feel belonging or in other words in which they feel at home. The material environment plays both the role of enabling new relations as well as limiting or selecting the kind of relations human beings entertain. With an epistemology that heavily draws on Actor-relational theory as well as on pragmatic insights into actors intertwinement with the environment we have tried to develop a conceptual framework where the anthropological needs of negotiating the inner and the outer orientation are meaningfully incorporated. From this conceptual perspective planning for mobilities needs to focus on specific encounters and contexts rather than only taking large scale structures into account.

For policy makers it is important to know that this longing for social connectedness might lead from a social perspective to undesired developments. Due to experienced lack of belongingness in places people could refrain to go outside their houses or avoid specific places in general or at specific times. We often observe this spatial inequality with women, homosexuals or specific ethnic groups who as a consequence will be limited in their integration into society. Also the use of public transport modes might be avoided by people in order to feel less confronted by undesired others. The same is true for the aversion of certain types of residential neighbourhoods. With a bad position on the housing market people are not always able to avoid living in these environments. Social segregation is mirrored not only in the differentiation of a city in good and bad neighbourhoods but also in practices to cope with public places.

In order to address this social issue of feeling at home policy makers cannot rely on traditional policies like situating infrastructures and land uses (Vromraad 2010, Healey 2007) or implementing policies to mix social and ethnic groups on the neighbourhood level to stimulate social interactions (De Zwart and Poppelaars 2007, Vervoort 2011). Especially, walking or cycling instead of driving the car changes the mobility patterns and brings people in contact with others (Freeman 2001, Heringa et al. 2014). It is recommended to perceive places as emerging from linking-up of individual paths through time and across space from which attractiveness can develop for others to join. As concluded by the Dutch Council for the Environment and Infrastructure (2010), this flow perspective on places and cities is unfortunately not very common in planning practice. However, in an increasingly mobile and complex society this approach seems to us much more preferred than the existing static and bounded approaches in planning (Dijst 2013). Communicative planning (Healey 1993, 2007) is addressing the decision-making dimensions of this flow perspective by focusing on the construction of the way of thinking and acting during encounters of time-space paths of various human and non-human actors that intersect in places. To address this social construction of meaning participatory or interactive planning with various stakeholders is suggested as a way to

limit biased visions, interests and decision-making. However, the substantive dimensions of the flow perspective such as the relational interactions between people and spatial configuration of land uses, infrastructures and other entities, and the associated feelings at home and sense of belongingness stay largely ignored. A better understanding might be reached by relying more on 'real time' information collected from GPS devices, electronic sensors and GIS systems (Richardson 2013). This tracking of routes and experiences might be accompanied with real time feedback on opportunities to affect people's social connectedness in cities. Experiencing a sense of belongingness is as fundamental to human life as using the material basis of human's dynamic and mobile existence. A 'flow turn' in spatial planning could bring planning closer to the existential needs of the dynamic and mobile human life. <<









# >> Integrated energy landscapes

**How coevolution encourages planners to focus on developing linkages between renewable energy systems and local landscapes**

Jessica de Boer and  
Christian Zuidema

## INTRODUCTION

>> In 2001 the Dutch national government embraced the notion of transition management as an inspirational framework for its pursuit of renewable energy (Ministry of VROM 2001, Verbong & Geels 2007). Transition management aims to guide society in sustainable directions through directed incrementalism (Kemp et al. 2007). A transition is a complex and long-term innovation process in which a societal system transforms from one system state to another (Geels 2011), for example from being fossil fuel-based and centralised to being renewables-based and decentralised. In a transition process, as we will explain later in greater detail, a system coevolves with contextual systems which are also evolving (cf. Kemp et al. 2007, Kallis and Norgaard 2010). To encourage coevolution, the Dutch government intended to focus on fostering processes of experimentation and learning in a dynamic and multilevel institutional context, thereby aiming at some key technological, social and institutional changes. Hopes were high regarding the changes that would be made to both the existing Dutch energy system and its governance. More than ten years later, however, the Dutch find themselves lagging behind their neighbours in generating renewable energy, and they face difficulties in getting large energy projects implemented (Baldé et al. 2012, De Boer & Zuidema 2015, Kern & Smith 2008, Verbong & Loorbach 2012, Negro et al. 2012, Rotmans 2011). One of the founders of energy transition management, Rotmans (2011), argued that the Dutch national government soon became too preoccupied with technological innovation in energy provision, and tended to overlook the need for social and institutional innovations. The energy transition consequently stopped being framed as a full-scale societal transition, but was narrowed down to innovation in energy provision pursued predominantly by the national government in collaboration with large energy companies (Verbong & Geels 2007). Nevertheless, as Rotmans also highlights, the local and regional dynamics surrounding energy initiatives appear to have thrived and exceed the dynamics visible in the corridors of Dutch national politics. His conclusion on the current Dutch energy transition is endorsed by others such as Hajer (2011) and De Boer & Zuidema (2015): if the Dutch are to increase their chances of creating a more sustainable renewables-based energy system, they need to embrace and foster the roles that local government, entrepreneurs and citizens play. It is, to use the words of Hajer (2011), a call to embrace the 'energetic society'.

This chapter argues that developing linkages between the energy system and local landscapes is crucial to encouraging coevolution and hence the energy transition, and we will show that energy initiatives can be a vehicle for doing so. We develop our argument by beginning in section 2 to explain how the existing energy system seems trapped in its fossil fuel-based development path, how transition thinking aims to break this path dependence by stimulating coevolution, and how our area-based perspective on coevolution adds value



to existing discourses on transition thinking. We illustrate our area-based perspective in section 3 with a description of historic transitions of the energy landscape. These transitions show how the connection of energy systems to local landscapes has changed over time in physical and socioeconomic senses. We will explain that renewable energy systems could again become integrated parts of local landscapes. This is what we call the integrated energy landscape. Based on our case study material on local energy initiatives and using the idea of an integrated energy landscape as a frame, we demonstrate in section 4 how local energy initiatives activate linkages with their spatial contexts in area-based niches in the landscape and how these linkages could engender coevolutionary processes between the energy system and other societal systems, such as agriculture, water or social care. We therefore conclude in section 5 that energy initiatives can also become a vehicle for pursuing the energy transition. We suggest that area-based planning approaches can support the development of energy initiatives by identifying unique local opportunities for linkages with actors from different societal systems. Once the need for a variety of linkages is understood and institutionalised, energy initiatives can truly become a vehicle for generating coevolution between the energy system and other societal systems, which is felt to be so central to the transition towards a sustainable energy system.

## TOWARDS A SUSTAINABLE ENERGY SYSTEM

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>> This section will explain why the energy transition in the Dutch policy discourse might be framed too narrowly and how an area-based perspective could help reveal the energy system in its wider context. The current debate and the national government's policy agenda seem to restrict their focus on technological innovation and large investment schemes, a restriction which is also visible in energy provision (cf. SER 2013). We argue that little attention is being paid to the challenges and opportunities for integrating renewables in local landscapes and local communities. We consider that this suggests that the government is better connected with the major energy companies than with society.

We begin this section by explaining the difficulties of pushing for physical, socioeconomic and institutional change in the energy system. After explaining how the existing energy system seems trapped in its fossil fuel-based development path, we will use transition thinking as our frame of reference for suggesting how to break this path dependence. Transition thinking highlights the role of innovation, learning and coevolution between new technologies and social, economic and institutional practices. We will add value to existing discourses on transition thinking by showing that an area-based perspective can strengthen our understanding of opportunities for coevolution.

### The troubles with path dependency

The energy system can be viewed as a complex web of interrelated actors and networks, in physical, social, economic and institutional senses (De Boer & Zuidema 2015). This complex web develops interaction routines, mutual behavioural expectations, the tendency to muddle through, and other kinds of self-reinforcing mechanisms, which make the system persistent as well as path dependent (Martin & Simmie 2008). This path dependence is both material and immaterial. Large amounts of accessible fossil fuel and natural gas have enabled the rise of an energy-intensive society. Fossil fuel and natural gas can be transported over large distances, which permitted energy generation, transformation and consumption to become spatially detached. A 'footloose' energy system emerged with a fine-grained network of power grids, gas pipelines, oil tankers and petrol stations in most parts of the world. Industry invested in technologies, which make clever use of the properties of fossil fuel-based energies, such as the steam engine, and later the combustion engine, and benefitted from economies of scale. These investments also led to sunk-costs, which make changes to the energy system quasi-irreversible (David 1994). The 'footloose' availability of energy is strongly embedded in our society. People are accustomed to playing a passive role in energy procurement: they simply pay their energy bills. The ease of the 'footloose' energy system prevents people from developing more active attitudes towards energy generation and consumption (Burch 2010). This is reinforced by an increasingly complex web of laws, international standards and regulations, which are coordinated by a few central authorities to guarantee energy supply. Governance of the energy system is consequently centralised to coordinate large-scale energy generation, large-scale energy transformation plants and large distribution networks. The corporate representatives of energy companies play an important role in the governance system and their economic position underlines that stakes are high: the Fortune 500 list of the world's largest companies includes many from the energy sector (Fortune 2015). The influence of such large players reinforces the existing structure of the energy system. In sum, with all this physical infrastructure, economies of scale, technological standards, social entrenchment, institutions (routines, laws etc.) and centralised energy governance, the energy system can clearly be described as path dependent. The evolutionary path of the 'footloose' energy system is continuously being reinforced. The path dependence of the existing energy system makes shifting to a more sustainable energy system difficult.

### Coevolutionary behaviour of societal transitions

As transition thinking explains, a transition can be seen as a complex and long-term innovation process from a more or less stable system state to another, via a complex process of interaction between actors and networks in physical, economic, social and institutional senses (cf. Kemp and Loorbach 2006, Loorbach 2010, De Boer and Zuidema 2015). In a societal transition such as

the energy transition, the existing societal subsystem transforms into another through interaction with contextual systems. During a transition process, new linkages are formed and activated to spread and upscale the new state so that a new evolutionary path emerges. New linkages are activated at multiple scales in society, from the local to the global, and between various domains in society (see also Kemp 2010). For example, a farmer taking the initiative for a biodigester may activate linkages between the energy system and other societal systems, such as food, water and finance. The energy system evolves in interaction with other societal systems, which also evolve while adapting to ongoing changes in their contexts: this is known as coevolution.

The term coevolution originates from biology and refers to the reciprocal relationship between separate biological evolutionary processes. Within the realm of the social sciences, coevolution is used to express, for example, how changes within one societal domain can resonate with changes in other societal domains (Foxon et al. 2010, Hadfield & Seaton 1999, Kemp et al. 2007, Norgaard 1984). Coevolution is based on the positive feedback, which can occur in one societal domain from changes in another societal domain. It is an important element or condition for transitions. As for example Kemp et al. explain, '[i]n transition terms we speak of coevolution if the interaction between different societal subsystems influences the dynamics of the individual societal subsystems, leading to irreversible patterns of change.' (2007: 80) Based on complex systems thinking, coevolution helps to explain how new physical, socioeconomic or institutional structures can emerge out of the interaction between existing and interacting societal processes.

Although the future directions of these coevolutionary processes may be uncertain, transition management nevertheless aims to direct coevolutionary processes towards a more general but pronounced 'vision', for example of a sustainable energy system (Rotmans et al. 2001). Transition thinking emphasises the importance of bottom-up processes in changing energy systems when viewed as a complex web of actors and networks in physical, socioeconomic and institutional senses (Kemp et al. 1998). In niches on the fringes of the energy system, innovative energy initiatives experiment in relative isolation and develop through learning-by-doing. Sometimes a 'niche' development is successful and can spread and upscale – in size, in its span of activities or in its political influence – and thus become more important to the energy system (Gillespie 2004).

The spreading and upscaling of such 'niche' developments based on renewables can create new coevolutionary pathways for the energy system as an addition to older pathways (see also Kemp et al. 2007, Simmie 2012). For instance, Rydin et al. (2013) describe multiple change pathways in UK urban energy systems which emerge from a combination of newly decentralised energy generation and distribution, grants and funding opportunities, and leadership by actors

from the public, private and third sectors or partnerships. They discern how different combinations, such as private decentralised energy systems with solar or large-scale wind power, give rise to unique dynamics and hence to multiple energy pathways. The pathways Rydin describes are not mutually exclusive; on the contrary, they coexist and co-create the dynamics of the energy transition. As Rydin et al. make clear, 'energy pathways are neither static nor mutually exclusive, but instead represent a range of options that might overlap, reinforce, or clash with each other as they either are rolled out and upscaled, or disrupted and disconnected' (ibid. 638). In the meantime, it is also all but certain which new pathways present successful future pathways. Since the pathways are 'in the midst of the period of experimentation, we cannot tell which pathways will die away and which will become more dominant' (ibid. 645). Coevolution might well then be the consequence of such new pathways, but it still remains unclear what its future directions will be.

In the Netherlands, new pathways could evolve out of the more than 300 bottom-up energy initiatives under development (Hier Opgewekt 2015). However, these bottom-up energy initiatives are not yet considered a serious challenge to the existing energy system; they are not considered in the Dutch government's energy outlook and are, at least in the short term, not expected to produce significant amounts of energy (Hekkenberg & Verdonk 2014, Elzenga & Schwencke 2014).

## AN AREA-BASED PERSPECTIVE ON THE ENERGY TRANSITION

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>> The energy transition appears to be framed in the Dutch policy discourse as a transition within the energy system, not as a transition of the energy system in connection with other societal processes such as agricultural innovations, economic restructuring, ageing and mobility (also see Rotmans 2011). In the Dutch energy policy discourse the spatial-physical and socioeconomic dependence of renewable energy systems on the local landscape is barely even considered. We suggest that this highlights two key omissions in the current debate and policy agenda on the Dutch energy transition.

The first key omission we identify is the framing of the energy transition as mono-functional in being focused only on the energy system in isolation from its societal and spatial context, rather than seeing changes in our energy systems as part of a wider societal development. This is a somewhat simplistic view, as a transition will have vast spatial-physical and socioeconomic implications. Issues related to the allocation of production sites for renewables, the development of new infrastructure, the conclusion of contracts and shifts in power are just a few examples illustrating how much energy production and consumption relate to other societal domains. These examples urge us to consider the linkages which are formed and activated between energy systems and their spatial contexts.

This brings us to the second omission we identify in the energy debate: a lack of attention for unique local circumstances. Our existing fossil fuel-based energy system is hierarchically organised by national and EU governments and big corporate actors in the energy arena, adapted to working at large scales and with mono-functional energy production. They are also the key actors in discussing the future of our energy system. This rather centralised governance network tends to overlook the dependence of energy initiatives on spatial-physical and socioeconomic conditions. Often, energy initiatives generate synergies and trade-offs which are based on local circumstances.

To respond to these two key omissions in this debate, we opted to develop an area-based understanding (e.g. Zuidema 2011) of the energy transition which can begin by considering local energy initiatives in relation to their spatial-physical and socioeconomic contexts. We do so by considering the ‘niche’ developments that can be defined by their unique context as area-based niches (De Boer & Zuidema 2015). In an area-based niche an initiative seizes local opportunities for synergies and trade-offs with local actors, such as entrepreneurs, public bodies or citizens, and with social system functions which are linked to the local landscape such as agriculture, water treatment, social care, housing and leisure. It is therefore not only the novelty of the technological or economic innovation which defines the niche, but also how the energy initiative uses its unique physical and social contexts and adapts to them.

An area-based perspective draws attention to the local conditions for integrating renewable energy initiatives in the landscape in physical and socioeconomic senses. For example, physically, the type and quantity of renewables, which can be generated, depend on landscape characteristics: the topography, the land-use and infrastructure constrain and enable different types of renewables (Van den Dobbelsteen et al. 2007, Stoeglehner et al. 2011, Stremke 2010). Urban areas are usually less accepting than agricultural areas of energy generation from residual biomass such as manure, which emits an unpleasant smell. Wind energy farms are easier to integrate in locations where landscape values are not affected in the eyes of the local population (Wolsink 2010). Local energy production can also socioeconomically contribute positively or negatively to the local economy or the regional identity. Local energy initiatives form various linkages with the landscape in physical and socioeconomic senses resulting in synergies and trade-offs, which, as we will discuss, contribute to the emergence of new coevolutionary pathways.

## THE HISTORY OF THE ENERGY LANDSCAPE

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>> An area-based perspective on the energy transition might seem novel, but the history of the energy landscape illustrates that an area-based perspective on the energy system is far from radical. Local energy generation and distribution



has been an organising principle in the landscape for thousands of years. Perhaps the 'footloose' energy system, which dominated the twentieth century, was an exception to the rule. In the following section, we will demonstrate how the relationship between energy and the landscape has changed back and forth from the local to the global over time. This history of the energy landscape inspired us to develop the image of an integrated energy landscape. This image might help us understand the coevolutionary processes, which are now emerging in the energy landscape so as to support the energy transition.

### First generation energy landscape

After long eons during which humans literally lived off the land as hunters and gatherers, our interaction with our environment intensified when we settled in agricultural and later urban settlements, starting around 10,000 years ago (Bogucki 1996). It is also from this time onwards that using the idea of an 'energy landscape' starts to become meaningful (Pasqualetti 2013). Communities began to make an impact on the landscape through agriculture, deforestation for fuel (Pyne 2001) and gradually by managing waterways and developing roads. In the time of the Roman Empire the need for wood for construction and especially for fuel even resulted in widespread deforestation in large parts of Europe (Hughes 1975 in Tainter 1988). It can be arguably considered as one of the earliest examples of an 'energy landscape' where the landscape was influenced by energy production and consumption. It is part of what Noorman and De Roo (2011) coined as the first of three 'generations' of energy landscape.

The first generation of energy landscape is characterised by an energy system, which is highly dependent on the local physical and socioeconomic landscape. Physically, the landscape strongly conditions the kind of energy used locally, while the use of energy also strongly influences the landscape. Socioeconomic activities, within this context, generally develop in close relation to the resources available in the local physical landscape, such as wood, flowing water, animal power or wind. Furthermore, energy production and consumption need to be nearby each other as energy needs to be produced where it is required, creating dense energy landscapes wherever windmills and suchlike were concentrated (Pasqualetti 2012). In the first generation energy landscape, energy is not yet considered a public good to be guaranteed by the state or by local authorities. Rather, it depends largely on self-organised access to local resources. If there are institutions to organise and manage energy production and consumption, they are therefore also largely area-based. In the Western Europe of the Middle Ages, landowners would create their own rules for harvesting wood or peat from their forests and estates (Dyer 2009).

### Second generation energy landscape: A 'footloose' energy landscape

While the first generation energy landscape continues to exist in some strongly rural or relatively undeveloped areas even in the twenty-first century, during the industrial revolution the production and consumption of energy changed

radically, resulting in the shift towards what can be called the second generation energy landscape. The second generation energy landscape is based on a more intensive use of energy, typically based on resources with a high power density such as coal, oil and gas (Noorman & De Roo 2011, Pasqualetti 2012, Van Kann 2015). Based on millions of years of accumulated biomass pressed into high densities, these resources can be extracted and excavated on a large scale, typically from underground layers (DeLanda 1997: 32-33).

However, when fossil-based oil, natural gas extraction, and to smaller extent uranium, gained importance during the twentieth century, the impact of energy production on the landscape became less visible in many regions. Not only would production facilities be modest in size and depend largely on underground resources, many of these facilities were also located out of sight in remote areas. While energy production is less visible within the second-generation energy landscapes, energy consumption is also spatially detached from energy production. The higher energy density of fossil fuels allowed its transport over large distances by rail, road, water and through pipelines, while the invention of alternating current enabled the transport of electricity over hundreds of kilometres (Jones 2010). A fine-grained network of electricity lines, gas pipelines and petrol stations emerged during the twentieth century, which now connects almost every household, company and vehicle owner across most of the world to non-stop power supplies. It allowed people to live in densely populated metropolitan areas far from energy sources. The result is a 'footloose', almost global energy system in which space is implicit, energy production and consumption have become spatially separated and the physical infrastructure is only visible to a limited degree in the landscape. In such a context, the influence of the energy system on spatial planning is marginal.

Another characteristic of the second-generation energy landscape is its hierarchical governance. Energy production is coordinated top-down by national and international governmental bodies and corporate representatives. International technological standards have been set for voltage levels, power plugs and oil quality, to name but a few, the EU has set policies to guarantee, among other things, the balancing of power on the grid between EU countries and to liberalise the energy market, and national laws have been designed to ensure the reliability of the national energy system. Public and private interests in the energy system are huge: almost every product is produced with help of mineral oil, coal or natural gas, almost all our activities are made possible by oil, coal or gas, and oil, coal or gas play a role in almost every supply chain. Gaps in energy provision can cause major financial shocks to the economy, such as the oil crisis of 1973 (Hamilton 1996). Therefore, energy security is an important public issue reinforcing a hierarchical governance approach (see also Verbong & Geels 2007).

### Drivers for a third generation energy landscape

The issue of energy security explains perhaps better than all others why we

have witnessed a global trend towards more sustainable production and consumption of energy since the oil crisis of 1973. Nation states have become increasingly concerned about geopolitical uncertainty due to oil and gas dependency on foreign countries, aggravated by the fact that some Middle Eastern regions are considered relatively unstable (Correljé & Van der Linde 2006, Bielecki 2002). During the 1980s and 1990s international concern with environmental harm and later also with climate change due to fossil fuel usage rose, which led to treaties which aim at restricting the CO<sub>2</sub> emissions from fossil fuels (Commission Communication 2011). Furthermore, the fact that recoverable reserves of fossil fuel are limited has become common knowledge, supported by widespread media attention for the idea of peak oil (Smil 2010). Estimates suggest that by 2030, more than two thirds of crude oil production will need to be replaced by new fields, which tend to be much smaller (Sorrell et al. 2012, Smil 2010). Although unconventional gas reserves, such as shale gas, may amount to forty percent of available recoverable gas reserves, it remains uncertain whether recovering the reserves is economically viable (McGlade et al. 2013). Finally, the global financial crisis, which began in 2008, inspired further consideration of a transition towards a sustainable economy (Jackson 2011, Stiglitz 2010). These drivers encouraged governments and civil society to look for a more sustainable energy system, which can be described as a movement towards a third generation energy landscape.

Early twenty-first century landscapes in Western Europe are changing with the emergence of new forms of renewable energy generation; dominated by solar energy, wind and hydropower, and energy from biomass. These not only require large areas to harvest sufficient amounts of energy, but are also highly visible. Since the 1970s, photovoltaic solar panels have been developed and installed on roofs for private electricity generation or in large fields for community energy (Aberle 2000, Hamakawa 2002). Since the 1990s modern wind turbines have been developed and installed on land, which is visibly impacted by wind farms (Langbroek & Vanclay 2012, Nadaï & Van der Horst 2010, Sijmons & Van Dorst 2012). The same period has seen experiments to improve bio-digesters, which produce gas from anaerobic digestion of residual or other biomass and organic waste streams (De Laurentis 2013, Groningen Promotie 2013, Jenssen et al. 2012). Other technologies which have been discovered or rediscovered include seasonal thermal energy storage for domestic purposes, the use of residual heat from industrial processes in district heating systems, and wood-fuelled furnaces to heat sports parks, swimming pools and schools (De Boer & Zuidema 2015). Usually, many small-scale generating installations are needed to generate renewable energy, working alongside large-scale hydropower plants and the cultivation of energy crops, all of which need to be integrated into local landscapes. The visibility of these installations can conflict with existing landscape values and therefore require careful spatial planning. Moreover, the integration of such installations into the wider energy system often depends on local linkages with various actors to develop an installation, connect it to the

gas or electricity networks and energy consumers, and, of course, to locate the installation and its supporting infrastructure in the land. In order to integrate spatially, renewable energy systems need to find a certain fit with the landscape. This fit is needed since renewable energy systems are typically based on the physical potential of local landscapes and are often developed in a context of local socioeconomic activities. Local physical landscape features condition the potential for harvesting energy sources like wind, sun and biomass (Van den Dobbelsteen 2008), while the socioeconomic functions of the local landscape condition the potential fit of energy generating installations with local willingness to invest and with local energy demand. The third generation of energy landscapes is, therefore, partly a return to the interrelatedness between energy systems and local landscapes that was common in the first energy landscapes. It is, however, also different in having to accommodate a far larger energy demand in an increasingly densely populated and intensely used landscape.

### Integrated energy landscapes

What third generation energy landscapes are revealing about themselves so far suggests that renewable energy systems may well materialise in interdependence with local landscapes in physical and socioeconomic senses. It also means that energy initiatives will be challenged to exploit and respond to the conditions offered by a local landscape and produce synergies and make trade-offs with the landscape in physical and socioeconomic senses. The history of the energy landscape shows that this is neither a radical nor a new idea. Linkages between the energy system and the local landscape are obvious: they had already occurred in historical energy landscapes. The challenge is to link the energy system and the landscape sustainably.

We developed the image of an integrated energy landscape to draw attention to the linkages between renewable energy and the multiple functions of the landscape in order to discern potential synergies and trade-offs. In an integrated energy landscape energy systems are integrated parts of a local landscape with multiple functions. This is a physical landscape with socioeconomic functions which are linked to land use (Pérez-Soba et al. 2008). For example, the physical infrastructure land use of renewable energy generating installations offers society several socioeconomic functions: employment, renewable energy provision, carbon dioxide emissions reduction, etc. Simultaneously, the energy system also linkages to other landscape functions, such as housing, mobility, tourism, agriculture or the environment. Hence, the image of an integrated energy landscape conceives of the energy system in its local spatial context and by doing so draws attention to the linkages between the energy system and the landscape's multiple functions.

The image of an integrated energy landscape shifts attention to the area-based conditions for integrating energy in the landscape. The image helps

discern what the area-based niche – in which energy initiatives develop and can spread and upscale – entails. By doing so, the image also helps discern how energy initiatives link the energy system and other social systems in their area-based niches and how their spreading and upscaling can give rise to new coevolutionary pathways. Hence, the image of an integrated energy landscape offers insight into the kind of linkages that matter for the energy transition from an area-based perspective. The image offers insight into what elements need to be considered in relation to each other when developing tailored action plans to drive the energy transition. This area-based perspective fits with area-based planning approaches to achieve the integration of renewable energy in the landscape. Area-based approaches are concerned with reaching integrated solutions based on utilising and balancing local potential, needs and stakeholder interests (De Boer & Zuidema 2015a). ‘Having an area as a reference facilitates the recognition of local strengths and weaknesses, threats and opportunities, potential and the identification of major bottlenecks for sustainable development.’ (Wade and Rinne 2008) Accordingly, an area-based approach not only considers the physical-technical aspects of integrating renewable energy in the landscape, but also the kind of socioeconomic linkages that energy initiatives activate. In the following section we will draw inspiration from this image to see whether we can already discern coevolutionary processes in energy landscapes in local energy initiative practices.

## COEVOLUTIONARY BEHAVIOUR IN ENERGY LANDSCAPES

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>> In a previous paper we already found that individual energy initiatives benefit from linkages with the local physical and socioeconomic landscape (De Boer & Zuidema 2015). In this section we will show that these initiatives can also become a vehicle for the energy transition since their linkages give rise to interaction between the energy system and the landscape and hence provide opportunities for coevolution.

### Research method: identifying starting points for coevolutionary processes

We conducted empirical research to explore the argument that energy initiatives activate linkages in their area-based niches, which can give rise to interaction between the energy system and the landscape and hence provide opportunities for coevolution. We analysed the linkages that energy initiatives activate with the local landscape and explored whether these linkages offer potential starting points for coevolutionary processes.

Our empirical research was conducted in two phases. The first phase involved sifting some key research reports on energy initiatives, participating in workshops and conducting interviews. The reports we studied highlighted the importance of these initiatives for the energy transition (Hajer 2011, Rotmans 2012), described the presence of a plethora of initiatives (Schwencke 2012), or



analysed how initiatives develop and how they become successful (Avelino et al. 2012, Mangoyana and Smith 2011, Seyfang and Haxeltine 2012, Walker et al. 2010). The workshops we participated in discussed issues related to the energy transition and presented renewable energy initiatives (Borgman and Maas 2012, Brunt and Termeer 2012, Edgar 2014, Groen Gas-Grünes Gas 2014, NEND 2013). The interviews were conducted with experts involved in the energy transition. Experts included consultants, government officials facilitating innovative energy projects, spatial planners and other scientists working for knowledge institutes. The goal was to understand whether and how initiatives interact with their contexts.

In the second research phase, we analysed the linkages that several energy initiatives activated with the local landscape. Several initiatives located in the North-East Netherlands were selected for more detailed analysis. A desk study of reports was conducted for each initiative to reconstruct its physical and institutional development, and interviews were conducted with relevant stakeholders. Based on this empirical material, the following sections discuss and illustrate some of the starting points for coevolutionary processes we discerned in local landscapes.

### Some exemplary energy initiatives

The reports we studied and the workshops we attended reveal some interesting examples of possible starting points for coevolution. Mostly, these examples did so in searching for synergies between renewable energy development and local contextual features. A strong example we encountered was the energy cooperative TexelEnergie from the Dutch island Texel. TexelEnergie generates collective solar energy on rooftops, generates bio-energy and provides renewable energy to local members since 2007 (Schwencke 2012). TexelEnergie, however, did more. It developed into a new economic sector for the island; it reinforced the islands' historical strive for 'being independent' (Avelino et al. 2012); and it stimulated the institutionalisation of local renewable energy supply not just on the island, but also in being an exemplary case for others. Clearly, producing renewable energy creates alternative benefits that reinforce support and focus on producing renewable energy. That is, the initiatives can be seen as one of the starting points for coevolution of the energy system, the economy and the governance system on the island and beyond.

The NEND and Groen Gas-Grünes Gas workshops we participated in also revealed some interesting examples of synergy between energy generation and alternative societal interests (NEND 2013, Groen Gas-Grünes Gas 2014). One good example we found was in the village of Annen (Municipality Aa en Hunze), where a mobile heating installation is used for heating the local swimming pool during the summer and the sports hall during the winter. The heating installation runs on residual woodchips derived from woodcuttings from municipal green. Without locally available energy demand of large municipal

facilities such as swimming pools and sport halls the project would be difficult. Vice versa, without the generation of renewable energy supply the ecological maintenance of municipal green would be difficult to pay for. Renewable energy, that is, creates new synergies between alternative societal interests. The creation of such synergies, subsequently, seem to also allow each of these interests to create a new market, as is also illustrated by a second swimming pool in the municipality now also being fuelled by woodchips (Gemeentebelangen 2015). A quick scan shows several similar swimming pools in The Netherlands (Zwemrecreatie 2015). The spreading and upscaling of this synergy offers starting points for coevolution of environmental management and the energy system.

Another example we viewed during a NEND workshop, is a project from the agricultural nature management association ANV Drenthe (NEND 2013). Due to budget cuts, both farmers and the ANV Drenthe face increased difficulties financing the nature management in the conservation area 'Drentse Aa'. In response, ANV Drenthe investigated the possibility to generate energy from grass taken from the area, which is seasonally harvested in order to conserve the local bio-diversity. The energy that is generated via bio-digestion can be sold and cover the costs of environmental management, while farmers in the Drentse Aa can benefit from the residual digestate as a fertilizer. Although the project is not realised yet, the initiative reveals a potential synergy between environmental management, farming and energy generation. During the workshops several similar initiatives were discussed showing possibilities to link energy generation to various alternative interests, such as nature maintenance, farming, composting, and urban green waste collection and processing. Again, therefore, we encountered encouraging signals that synergies between renewable energy development and local contextual features may indeed engender coevolutionary processes. The lessons we drew from these reports and workshops stimulated us to study some cases in more detail.

### Green hub

In the second research phase, we identified similar starting points for coevolution in the cases we could study in more detail. A good example of an initiative connecting the energy system to various societal domains is the Arnhem-Nijmegen region Green Hub case (Hagens et al. 2013). The Green Hub platform connected the sustainable regional transport interests and activities of regional government, knowledge institutes and companies. The platform encouraged dialogue among participants on how regional biomass could be used to generate biogas for use in regional public transport. This dialogue resulted in a regional public-private partnership for biomass for sustainable regional transport (De Groene Hub 2013a). Local government had a sustainability ambition and policy target for innovative use of its organic waste material. At the same time, there was a public transport organisation interested

in using green gas from organic waste material for public transport. Success led to the creation of a second phase for the Green Hub in which the partners aim to upscale their practices (De Groene Hub 2013b). The project is now being promoted as a means to achieve regional targets, such as a cleaner living environment and a stronger regional economy. In doing so, the Green Hub promotes innovation in several systems. The Green Hub promotes innovation in the energy system by creating a regional bio-energy network, innovation in the mobility system by basing regional transport on biomass, innovation in the governance system by creating regional public-private partnerships, and innovation in the economic system by creating a regional social network with a wide variety of actors around regional bio-energy for public transport. The synergies and trade-offs among these systems provide opportunities for upscaling and making the Green Hub part of a wider societal development and could, therefore, be a starting point for a coevolutionary pathway for energy, mobility, economy and governance.

### Grunneger Power

An interesting initiative in the Northern Netherlands, which offers springboards for coevolutionary processes, is Grunneger Power. Grunneger Power is a community solar power initiative, which started by supporting its members in solar panel procurement and installation, and soon also became an energy distribution company selling renewables-based electricity at fair prices to its customers (Grunneger Power 2012). Within two years Grunneger Power grew to almost 1000 household members (Broere 2013), but shrank temporarily after encountering difficulties following the bankruptcy of its renewable energy supplier. Grunneger Power became one of the key drivers behind the initiative for a regional renewable energy distribution cooperative. This paved the way for a regional cooperative, called NLD, which buys renewable energy from initiatives and sells renewable energy to members of local energy initiatives in the Northern Netherlands (Coöperatieve vereniging NLD Energie U.A. 2013). Grunneger Power now distributes energy to its members via NLD. Simultaneously, Grunneger Power was closely involved in the development of a provincial energy service point for citizens and initiatives answering questions on renewable energy and energy saving (Natuur en Milieufederatie Groningen 2015). Among the outcomes these two developments achieved is the development of an umbrella cooperative in the province of Groningen, called GrEK, which functions as a knowledge platform for energy initiatives. GrEK now coordinates the provincial energy service points and also represents the Groninger initiatives in NLD (GrEK 2015). In doing so, Grunneger Power stimulated the creation of a social network that facilitates the spreading and upscaling of local energy initiatives: Grunneger Power, NLD and GrEK provide social services for citizens in the region and the connection of these initiatives with established actors such as municipalities and provinces drives the adaptation of existing institutions to local energy initiative practices.

Grunneger Power thus generated new regional dynamics which, when upscaled and transmitted through society further, could initiate coevolutionary processes between the energy system, the social services system and the governance system.

## CONCLUSION

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>> Theoretically, it is well established that transitions depend on coevolution processes. We added an area-based perspective on transition thinking to help us identify what kinds of linkages could support such coevolution from the bottom up. The image of an integrated energy landscape we developed helped us to identify linkages between energy systems and local landscapes. Despite the fact that current practice on governing the energy transition in the Netherlands is rather narrowly focused on energy 'alone', and dominated by a centralised governance network, our area-based perspective helped us discern that a plethora of local energy initiatives is activating linkages with the local landscape. These linkages revealed synergies and trade-offs between various societal systems in which we discern the origins of new coevolutionary pathways.

For the energy transition, such innovations and interaction among societal systems could promote learning from a rich collection of varied initiatives and practices: it is a way to discern the pros and cons of various ways of embedding energy production in different spatial contexts. Through monitoring and comparison, spatial planners and other stakeholders can draw lessons from area-based practices. These lessons could help initiatives get started or improve and might help governance adapt its practices. Local initiatives and practices are now indeed niches in terms of transition thinking: area-based niches. Some become successful as they make efficient use of local potential, able to upscale and export energy or knowledge, while others might fail or remain of marginal importance. In this context, evaluating and monitoring the linkages that local renewable energy initiatives form with the local landscape is essential for understanding the conditions for spreading and upscaling renewable energy. <<

### Acknowledgements

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# >> Towards an evolutionary network approach of cluster policies

**Skill-relatedness, FDI and multilevel governance in Zuid-Holland, The Netherlands**

Frank van Oort,  
Nicolas van Geelen and  
Helmut Thöle

## INTRODUCTION

Currently, Dutch regions are faced with major economic challenges. The financial crisis represents a crucial test of the viability and resilience of economies. This is particularly true for regional and urban economies, since sectorial specializations and local success factors have a marked impact at the regional level. The increasing speed of technological development requires regions sustained investing in new knowledge and applications. In order to renew economies continuously. This involves the optimal use of existing spatial structures and continued investment in local environments. The advance of rising economies in globalized markets leads to increasing international competition, not only in cheap production but also in smart application of the latest technologies. Manufacturing industries have been moving steadily to Asia over the past decades. The industrial sectors remaining in Europe and the United States find it difficult to achieve the productivity levels required for efficient production on a global scale. The industrial clusters in these regions aim to achieve a global competitive edge in particular by the preservation and expansion of the high-quality functions that ensure long-term viability, such as R&D, trade, head offices and management. Recent developments support this strategy, as labour costs come to play an increasingly minor role in production processes. Innovation, knowledge workers, skills, creativity and the ability to renew oneself are becoming more important input factors in the current knowledge economy (Raspe and Van Oort 2006, Van Oort 2012). This leads to an increasing demand for locations where the knowledge environment plays a more important role. Such trends offer renewed opportunities for Western economies. In this chapter we analyse how this could work out in the Dutch province of Zuid-Holland.

### Local buzz and global pipelines

This chapter presents an evolutionary geographical framework that aims to identify latent opportunities and crossovers within and between the regional clusters in Zuid-Holland. It wants to link these opportunities with urban and regional policy agendas and the existing economic and spatial instruments in the province. It also introduces a new approach to the issue of long-term resilience and viability of the region as a continuous evolutionary process of economic renewal in which both endogenous and exogenous opportunities for growth and renewal are identified. Endogenous opportunities arising within the region are associated with the links between existing knowledge in top sectors and clusters. This is examined by considering the skill-relatedness between specific sectors as measured by the job mobility of employees. Other local forms of economic connections between sectors and regions apart from skill-relatedness may also be important, such as supply and outsourcing links, institutions concerning the labour market, the housing market and living environments, access to major urban amenities, and the small-scale dynamics

of entrepreneurship and spin-off networks. These factors jointly determine the optimal local embedding of economic clusters (Cooke 2011, Asheim et al 2006, Brenner 2004). We focus in particular on the links between knowledge-intensive skills, since these are increasingly seen as the main success factor for clusters (Glaeser 2011). Exogenous growth potentials arise mainly from the relations between companies in the region and the knowledge potentials outside it. Foreign investment networks (both Greenfield and merger and acquisitions), knowledge networks and cooperation in R&D and innovation play an increasing role here on a global scale. The position of regions and clusters within these networks is of crucial importance for their future viability (OECD 2011). Economic and spatial policies should therefore be increasingly framed in terms of these networks, and should be based on optimal assessment of the region's endogenous potential. Policy-makers still tend to place insufficient emphasis on the advantages of international hub positions and the cluster advantages of their own specialisations. We argue that links between the local embedding and functioning of clusters and international connectedness are essential for optimal utilization of the potential of a region. Due consideration will therefore be paid to the position of Zuid-Holland in foreign investment networks, an important indicator of the linkage between regions and international production networks. The scale (from region to district and knowledge park) at which policy instruments can be deployed in order to realize these potentials to the full will be made clear, as is the identification of actors who need to enter into discussion with the regional policy-makers in the interests of regional development.

### Aim and structure

This chapter examines the opportunities offered by a knowledge economy for the Dutch province of Zuid-Holland to link up with international networks. The ultimate aim of the study is to offer advice about the spatial and economic approach the province could take to its cluster policy in consultation with other administrative layers (Van Oort 2012). Four main clusters may be distinguished within the province (Bestuurlijk Platform Zuidvleugel 2012): the harbour industrial complex (the area of and around the Port of Rotterdam, comprising the sectors chemical industry, transport, wet hydraulic engineering and trade), campus development (with a particular focus on innovative sectors such as life sciences and bioengineering), the Greenport (greenhousing and horticulture) and knowledge-intensive business services. The province aims to build on these strong sectors to achieve renewal leading to a dynamic urban economy with a favourable competitive position in relation to others medium-sized Western European regions. The question to be dealt with here may thus be phrased as follows: "How can the province of Zuid-Holland (PZH) make the most efficient use of its spatial and economic resources in order to make its economic clusters optimally robust and viable while at the same time optimizing its international network position?" The study wants to identify opportunities for diversification

of the four existing clusters, the (sometimes unexpected) cross-overs between the various sectors, and the identification of the relevant locational factors in the business environment of the province in relation to economic concentrations outside the region.

This chapter is built up as follows. Section 2 presents the reasons for the study. Some of the main clusters within the province give cause for concern: while they still show growing productivity, their performance in terms of renewal, innovation and growth of employment is much less favourable. They have often come to the end of what may be called their cluster life cycle (Menzel and Fornahl 2009). This important concept summarizes that clusters may be regarded as evolving through a number of phases during their lifespan. A region should ideally have a portfolio of renewing and more mature sectors in each of which actors can learn from one another. We will introduce the concept of the cluster life cycle with reference to the portfolio of clusters within Zuid-Holland. We show that mature sectors are over-represented, while there is a relative deficiency of new, innovative sectors. This determines the viability of the region to a great extent. Viewed in relation to the spatial and economic policy trends ("smart specialization" strategies) in Europe and top-sector policies in the Netherlands, this means that the regional economy should develop towards more innovation and growth within the traditionally strong clusters in order to derive optimum advantage from the benefits of scale. Arguments for the proposed innovative approach (which involves thinking more in terms of the quality of cluster portfolios and network positions) are given in section 3 on the basis of analysis of skill-relatedness in the urban environment (endogenous development) and foreign direct investment or FDI (exogenous development), the relationship between these factors and the structuring effect of spatial factors. Strengths, weaknesses, opportunities and threats are formulated for the province in terms of both skills and foreign investment. This section is based on the results of two previous studies on skill-relatedness and FDI flows (Wall and Burger 2012, Neffke and Nedelkoska 2012). It is argued in these studies that both skill-relatedness and foreign investment in the region provide qualitative stimuli for renewal within the regional clusters. The detailed findings from these two studies have been combined in the idea of a Zuidvleugel (the 'southern wing' of the Randstad, comprising the region around The Hague and Rotterdam together with other nearby towns) flywheel of regional development. This survey also identifies a strategic policy pathway focusing on the one hand on the identification of opportunities for innovative development, and on the other indicating which investment and development strategies are likely to be less favourable. Finally, section 4 deals with the set of instruments required to achieve renewal and cross-overs within and between clusters and sectors, and the role that the regional authorities should play in handling these instruments. Policy initiatives that were previously based on abstract, relatively limited principles are discussed here at three different levels

ranging from regional to local. The regional initiatives are based on knowledge clusters extending from Noordwijk to Rotterdam in the planning concept of the so-called 'Knowledge Axis'. The new analytical approach that takes into account both skill-relatedness and foreign investment targeting segments that are likely to succeed, enables us to map the relationships within and between the different knowledge clusters clearly. This is important in order to assign the Knowledge Axis the significance it deserves in the current planning and implementation of policy in Zuid-Holland. Branding, joint acquisition, access to facilities, labour market dynamics and complementarities between individual clusters provide the basis for policy at urban level. This is important in order to arrive at larger agglomerations and further-reaching network formation in the region, leading to a focus on knowledge environments in city centres, knowledge parks and mixed residential and work functions in urban neighbourhoods. It is important to keep the policy focused on these working locations, alongside the traditional attention to residential environments for people with higher qualifications. Finally, it is argued that labour market policy and knowledge valorisation should be prioritized on the province's agenda.

## THE CLUSTER LIFE CYCLE AND ECONOMIC RENEWAL

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The economy of Zuid-Holland has a number of strong clusters: the harbour industrial cluster with such sectors as shipbuilding, the chemical process industry, transport and distribution; the market gardening and horticulture cluster in the Westland region near The Hague, the water and Delta technology cluster in the towns around Dordrecht, business services that are traditionally strong in the urban economies of Rotterdam and The Hague, and the national and provincial government cluster in The Hague and environs. Van Oort et al (2013) show that the drop in employment in the urban districts of Rijnmond and Haaglanden has already been in existence for some time. In particular, Rotterdam and The Hague lost jobs in the period 1990–2010. This negative trend can be ascribed to three main factors: (a) a structural effect (the cities are specialized in sectors where employment has been dropping both nationally and globally), (b) a demographic effect (population growth in the cities of Zuid-Holland is not always positively related to employment growth in the clusters), and (c) a location effect (the economic activity of a city or region, corrected for sector structure and populations dynamics, may be greater or less than expected on average). Although both the structural effect and the demographic effect contribute to the drop in employment in the cities of Zuid-Holland (certainly in comparison with that of the Noordvleugel or northern wing of the Randstad), it is the location effect in particular that has an especially adverse effect in Zuid-Holland. This suggests that the sector structure, job market, renewal potential and business dynamics in the cities and regions of Zuid-Holland may represent a problem for the long-term growth potential and viability of the region.

The concept of the cluster life cycle, with special reference to the ability of clusters to stimulate the generation and diffusion of knowledge, is an important point of departure for the future regeneration of employment. Clusters ideally have two main characteristics: (a) they are concentrations of companies in the same and closely related sectors, and (b) the companies in question share certain features which speed up the implementation of knowledge exchange and cooperation (Brenner 2004). But as clustering is merely the physical proximity of firms to each other (concentration), that does not mean that functional networks are in place. Policy-makers take for granted that physical and functional relatedness coincides, and focus on cluster formation as a means of improving the international competitive position of cities, regions and countries. For example, the European Union aims to make the European knowledge economy one of the best in the world by 2020, and uses clusters as one of the main driving forces to this end (Thissen et al 2013). The objective at a national level is to create top-sectors that have a spatial as well as a sectoral dimension. However, the division of tasks between the European Union, the national and regional governments is not yet always clearly defined. It is further expected that economic cluster formation around specific knowledge-intensive activities will continue to grow in importance. Cluster formation can however have a paradoxical unintended adverse side effect. The advantage of a geographical concentration of companies is that it can stimulate renewal and cooperative relations between the companies in a cluster. But if the companies in a cluster are too inwardly directed, there is a risk of 'lock-in' (too few new ideas penetrate the cluster), and the number of innovative companies in the cluster may drop. Import of knowledge specializations other than the dominant one within the region can avert this risk, however.

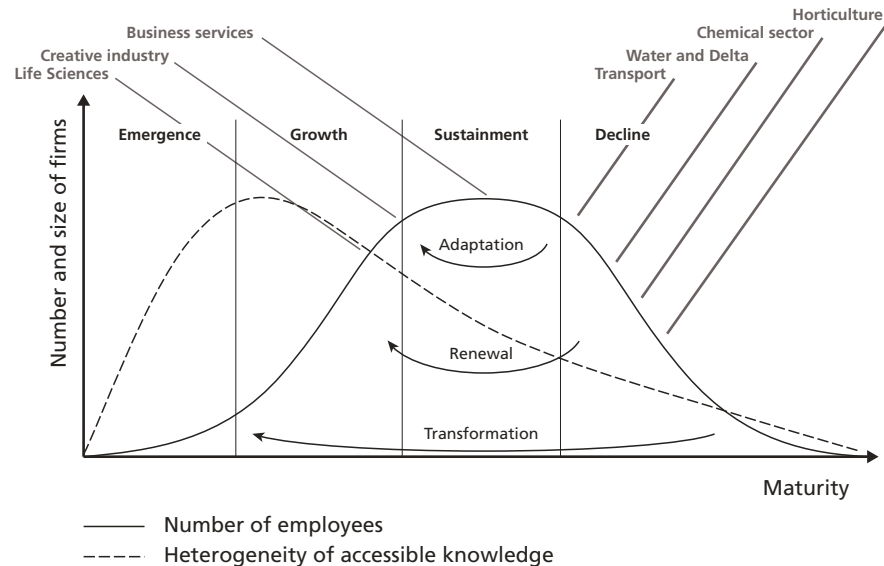
### Cluster life cycle

A cluster is not a static entity, but develops over time. The concept of a life cycle is used in various different contexts in the economic geography literature, for example with reference to products, sectors and branches of industry. It can also be applied to clusters, where the following phases are distinguished: emergence, growth, maturity and decline. Each phase is characterized by a certain size, dominant technology and business dynamics (Braunerhjelm and Feldman 2006, Fornahl et al 2010), and by its productivity and employment growth rate. The positive dynamics are often found in the qualitative dimension: innovation, renewal, new markets, new technology and diversification to related economic activities. The tapping of new markets and increased diversity in the initial phase of a cluster life are often associated with employment growth, while efficiency is the dominant factor in the maturity phase. This leads to higher productivity in existing and surviving companies (Frenken et al. 2007). Figure 8.1 gives a graphic representation of the life cycle of clusters.



**FIGURE 8.1**

**Cluster life cycle.** Source:  
Menzel and Fornahl (2009),  
p. 218.

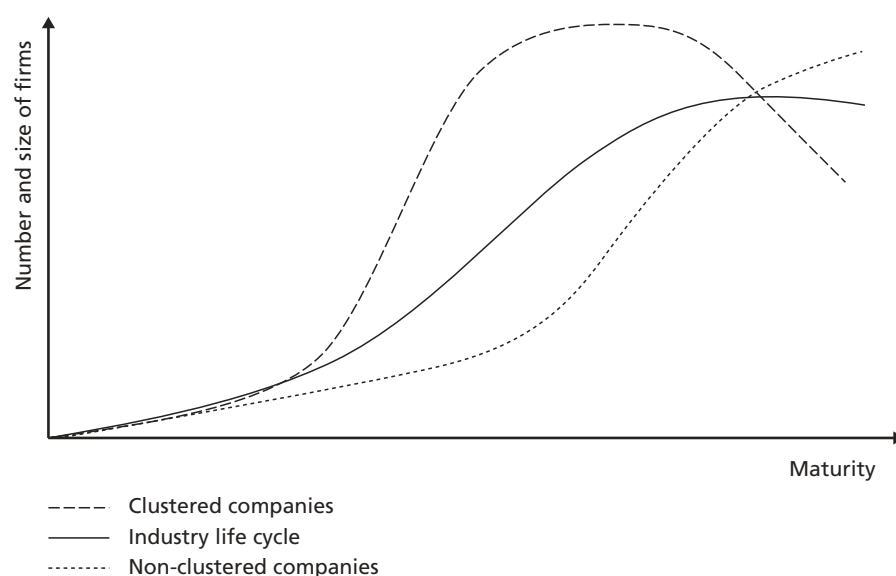


A cluster theoretically always passes through the four phases of emergence, growth, maturity and decline. The heterogeneity of available knowledge is great at the start of the life cycle, but the availability of knowledge becomes restricted as the cluster grows (this does not mean that there is less knowledge around, but existing market players protect their knowledge better). It may be possible to regenerate the cluster at the end of the life cycle by introducing new technologies, adapting to market requirements or even switching to new products for new markets. This can usher in a new phase of information collection, renewal and growth. Clustered companies are in a better position in an expanding market, because of the advantages of knowledge interchange and higher information compactness in clusters (see Figure 8.1). These elements fit into the concept of the benefits of scale, as a result of which companies in urban agglomerations have higher productivity than those outside such agglomerations. On the other hand, non-clustered companies do better at the end of a sector and/or cluster life cycle because they are less stuck into existing routines and fixed interaction patterns. The cluster-internal dynamics is related to functional networks of firms and employees. This implies that the benefits of scale shift from the cluster to the urban environment during the life cycle of sectors. They also often change in nature from location benefits (where companies located in the same sector learn from one another) to urbanization benefits (benefits available to companies in different branches of industry throughout a given urban environment) (Beaudry and Schiffauerova 2009, Duranton e.a. 2010).

A few empirical studies demonstrate that different clusters belonging to the same sector can show quite different growth paths (Saxenian 1994, Menzel and Fornahl 2009). This is found to be due mainly to the mutual interaction of the

**FIGURE 8.2**

Clustered and non-clustered companies during the cluster life cycle. Source: Menzel and Fornahl (2009), p. 211.



members of the cluster and the influence of external factors on renewal, and appears to confirm the effect on knowledge circulation posited in the theory of the cluster life cycle.

The position of the clusters of Zuid-Holland on the cluster life cycle may be estimated from information on business dynamics and employment growth (Van Oort 2012; see also Figure 8.1). It is striking that Zuid-Holland contains not only sectors in the growth and renewal phase but also some in the decline phase. The life science cluster in the province is relative small and still in the growth phase. It was mainly initiated in Leiden (Bio Science Park) in the early 1990'ies. This sector is growing fast in Zuid-Holland, however, and a great deal of scientific knowledge is needed to ensure progress and to enable it to occupy market niches. The success of the Leiden biotechnology clusters is witnessed by the growth of the firms involved, the attraction of foreign capital and their outsourcing capacity. The creative sector is already more mature but still has considerable growth potential in the province, especially around Leiden, The Hague and Delft. Business services are in the maturity phase. The largest clusters in the province, wet hydraulic engineering, agrofood, greenhouses and horticulture, transport and distribution, national and local government and chemical industry, have already reached or are reaching saturation, witnessed by less start-ups and employment decline. Also knowledge intensive business services, traditionally strong in the cities of Rotterdam and The Hague, sows declining dynamics. This does not mean that there are no chances at all within these clusters (there is a shift towards service, and hence opportunities for growth, in all clusters), but the clusters would be well advised to seek diversification in related sectors and market niches that would guarantee more structured growth in the long term. One important option here is to look for latent sources of knowledge related to existing knowledge within these clusters.

## SKILL-RELATEDNESS, FDI AND EVOLUTIONARY ECONOMIC DYNAMICS

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The traditional approach to clusters stresses the importance of specialization. Specialization provides a basis for in-depth investment in infrastructure, the labour market and institutions. Such in-depth investment has become almost a precondition for effective competition with other regions in the current global economy, allowing clusters to contribute to the competitiveness and economic growth of a region. But a specialized economy is also vulnerable. Specialization limits the number of economic activities a region can engage in, and reduces the opportunities for cross-fertilization and renewal. As the economist Schumpeter observed at the beginning of the previous century, creating new combinations of existing ideas is crucial for innovation. Regions should therefore ideally be diversified as well as specialized (Desrochers & Lepalla 2011). Pure specialization makes a region vulnerable, while too much diversity in economic activities hinders the focus needed to compete successfully on world markets. This suggests that only the biggest regions can be economically viable, since small regions cannot possibly specialize in a large number of activities at the same time. However, this dichotomy between specialization and diversity ignores the synergies that are possible between particular economic activities. Medium-sized regions can combine economic cohesion with a high level of diversification by making skilful use of these synergies (Dijkstra et al 2013). The key lies in what Frenken et al. call related variety (Frenken et al. 2007), since the largest opportunities for knowledge transfer exists between companies that belong not to the same but to related branches of industry. Companies from related branches of industry have overlapping knowledge bases. This overlap facilitates intercompany communication: shared knowledge, frames of reference and applied technology make it easier for them to understand one another. The fact that this overlap is only partial means that there is room for them to learn from one another. The presence of a high volume of related economic activities in a region thus facilitates the generation of new combinations of existing technologies. The diversity of activities spreads the risk, so that the region is not dependent on only a handful of branches of industry.

Hence, regions benefit from an industrial structure consisting of a large number of different but related branches of industry. A recent study of long-term diversification in various regions of Sweden by Neffke and co-workers provided empirical proof of this (Neffke et al 2011). This study showed that it is easiest for regions to attract new branches of industry that are related to existing ones. Conversely, companies in certain branches of industry are more likely to leave a region if no related activity is present there. Thus, branches of industry related to those already present in the region fit the region's industrial profile better than those for which this is not the case. The identification of such branches of industry is thus vital for the economic policy of a region. It follows that it is important to determine which branches of industry are related to which.

The Zuid-Holland study considered relatedness in terms of employee skills - that is, in terms of the human capital deployed by companies. Human capital is by far the most important production factor in today's knowledge economy (Van Oort 2012). Companies compete not only for customers but in particular for talent. As a result, regions where people with the right skills and work experience are to be found are much sought after by the international business world. Branches of industry are said to be 'skill-related' if they need employees with the same kind of skills. Skill-relatedness can be measured on the basis of work mobility between different branches of industry. People prefer to work in branches of industry that are skill-related to the one where they were employed previously, while employers like to recruit employees from skill-related branches of industry since such employees only require low investment for further training and adapt to their new job faster than ones from unrelated branches of industry.

The Zuid-Holland study therefore used labour flows between companies from different branches of industry as a measure of skill-relatedness. The presence of skill-related branches of industry in a region has three main advantages. Firstly, good embedding in the local labour market offers a branch of industry access to a labour force with the relevant skills. The fact that they share this labour force with other branches of industry yields scale benefits in the training of employees. Secondly, growth in skill-related branches of industry can compensate for economic downturn in a given branch of industry. The interchangeability of employees allows growing branches of industry to hire workers who were dismissed elsewhere, thus avoiding a major loss of human capital. Thirdly, there is wide scope for exchange of knowledge between related branches of industry. As a result, skill-related branches of industry often complement one another in innovation processes. The face-to-face communication that is essential in innovative joint ventures is easier to coordinate at a local level than at a distance<sup>1</sup>. Due to the long-term specialization of the region in lower-skilled industries, innovation potential in these sectors is not that obvious (Van Oort et al 2013). Still, cross-overs and recombination of existing knowledge in industries may initiate new growth opportunities in the second-largest economic region of the Netherlands. Also, large sectors, like the chemical industry in the Rotterdam regions, has sector-internal diversification opportunities for new markets and renewal. Cross-overs opportunities become especially apparent when analysing labour flows between detailed defined sectors. The data used for such analyses in Zuid-Holland allows for such detail.

<sup>1</sup> This study is mainly interested in the presence of related branches of industry in the region itself. But employees are often willing to travel some distance from their home to find work. The situation in accessible nearby regions is thus also relevant when assessing the opportunities for related activities in urban regions. Commuting links can be used to ensure the necessary accessibility. The embedment level may thus be defined as the level of related employment in the region in question plus the potential commuter flow from related branches of industry in surrounding regions.

### The Zuidvleugel Flywheel

The findings of the study concerning skill-relatedness are summarized in the concept of the Zuidvleugel flywheel illustrated in Figure 8.3, which depicts the Zuidvleugel (the 'southern wing' of the Randstad, comprising the region around The Hague and Rotterdam together with other nearby towns) as the motor for economic development in the province of Zuid-Holland. Zuid-Holland

is a diversified economy with many different specializations. The four main clusters play a pivotal role in the province. The logistics and harbour industry cluster is mainly concentrated in and around the Port of Rotterdam together with Dordrecht and nearby towns. There is a high level of skill-relatedness between the wholesale trade and other forms of transport within this cluster. The Greenport cluster comprises three constituent parts: horticulture under glass, the wholesale fruit and vegetable trade, and biotechnology research on horticultural products. The skill-relatedness between these three components is limited. The water and Delta technology cluster comprises wet hydraulic engineering and the shipbuilding – mainly concentrated in Dordrecht and nearby towns. There is finally a large national and local government cluster, including a number of niches such as diplomacy, international law and security. While all these clusters contain growth niches (such as maintenance in shipbuilding, process chemistry and petrochemistry, green energy in chemistry, bioengineering and seed improvement in horticulture and diplomacy in the government cluster), all clusters show a drop in employment and reduced business dynamics.

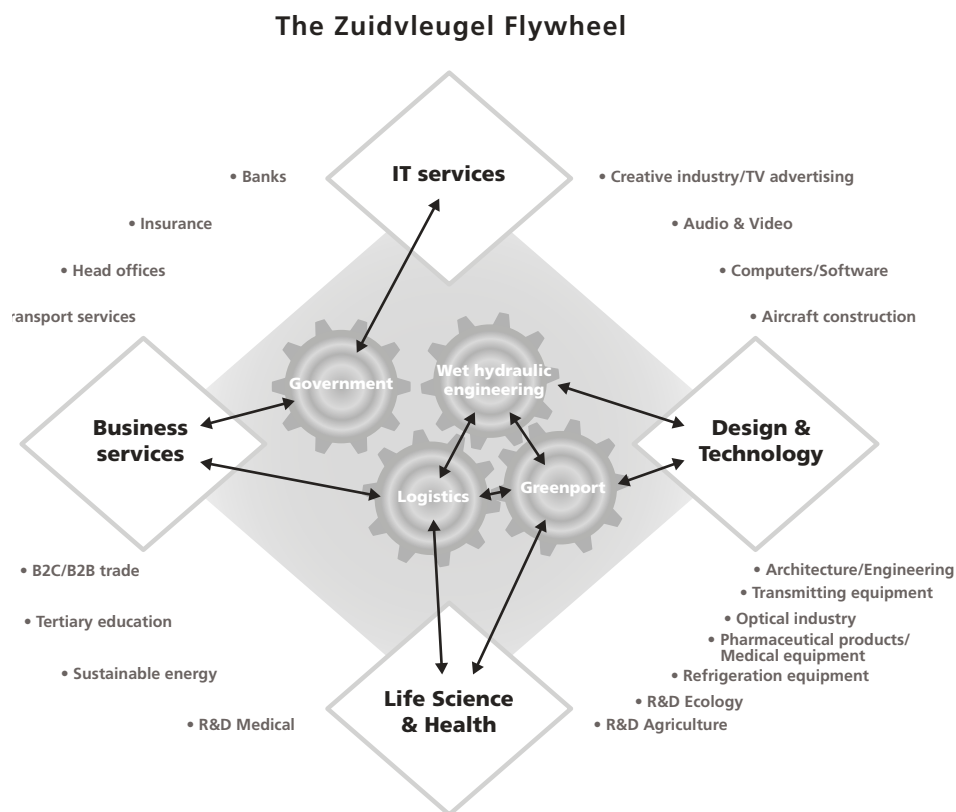
Figure 8.3 shows the four main clusters in the middle as a system of interlocking cogwheels. They have many relationships in common (in terms of both skill-relatedness and input-out links). These four central clusters do not produce enough regenerative power themselves to ensure sustainable, self-reinforcing growth. They lack new activity, innovation and knowledge or business alliances between their own subsectors in the long term<sup>2</sup>. This regenerative power can only come from alliances with sectors outside the core clusters, but these sectors will have to have a productive relationship with the clusters in question, in terms of skill-relatedness. The established clusters must thus look beyond their own top-sector comfort zone in search of such alliances. There has been a major shift from manufacturing industry to services in Zuid-Holland during the past 20 years (Van Oort et al 2013). This change in the industrial profile of the province also has an effect on the way the various branches of industry are embedded in the industrial fabric. For example, financial services and high-tech industry and services are not only growing but are becoming more firmly embedded as the skill-related employment level in Zuid-Holland rises. The transport and heavy industry sectors traditionally located in the south of the province are shrinking, however, as is their base in the job market. Two other important clusters in Zuid-Holland – logistics and water and Delta technology – are suffering the same fate. If this trend continues, these sectors will find it more difficult to exchange personnel and knowledge via the local labour market in future, which will have an adverse effect on their competitiveness.

<sup>2</sup> The government cluster is in a different position than the other three clusters in the flywheel diagram, since it shares few skills with the others. The other three clusters are skill-related, however.

This study shows that a number of sectors can be considered as promising partners for the clusters at the heart of the Zuidvleugel flywheel. The sectors shown in the white blocks of Figure 8.3 are not only mutually skill-related but



**FIGURE 8.3**  
The Zuidvleugel Flywheel.



also share supply and outsourcing links; in addition, they are also strongly skill-related with all four clusters. For example, business service skills are being increasingly deployed in the logistic, government, horticultural and wet hydraulic engineering clusters. Knowledge and skills from IT services are also widely used in many other sectors. The present study shows that this is particularly true of the government cluster, but there are also well-defined links with financial services and the creative and electrical industries. The skills represented in the design & technology sector are widely used in wet hydraulic engineering, transport and the Greenport. This applies in particular to the skills required for greenhouse construction, refrigeration and other engineering disciplines. Finally, many people who are active in the life science & health sectors have skills that can be usefully applied in horticulture (especially in horticultural research).

Apart from these established specializations in the fields of service and high-level research, there are other sectors that might have useful synergies with the main clusters in Zuid-Holland but have not yet been used as much as might have been expected in view of their current relationship with the activities deployed in the province. These sectors are shown around the periphery of Figure 8.3. They often form unexpected combinations with existing clusters and specialized services, and are thus interesting as a basis for further cross-fertilization between sectors. For example, some skills found on the province's labour market are useful in financial services – a sector that is usually associated

with Amsterdam. The financial sector is however not well represented in Zuid-Holland, apart from Rotterdam. On the other hand, the labour market could support further development of the creative industry in Leiden, The Hague and Delft. These cities might also attract the head offices of transport, chemical and business service companies as well as various electronics and mechanical engineering sectors such as the optical and medical equipment industries, aircraft construction and sustainable energy.

Zuid-Holland may roughly speaking be divided into two on the basis of the skill-relatedness found in the province. The labour market in the north-western part (Leiden, The Hague and Delft) is rich in skills associated with business services and certain high-quality branches of industry (pharmaceuticals in Leiden, high-tech in The Hague and Delft). Together with opportunities in the creative industry, publishing and computer software, this suggests that strong links exist with the labour market of the Noordvleugel (northern wing) of the Randstad. The south-eastern part (Rotterdam, Dordrecht and nearby towns), on the other hand, is particularly well represented in transport and heavy industry. The branches of industry that are skill-related with these last-mentioned two activities are mainly found in low-added-value industrial and services sectors. As a result, the labour market in the province also tends to show a two-way split. Relatively large branches of industry in the province or its cities that occupy an isolated position on the labour market may also be found to be at risk. The chemical industry in Rotterdam is an example of this. This big employer on the local labour market finds it difficult to recruit enough employees with the right skills from the region, and to find other companies with related knowledge. The present study shows that architects and consulting engineers in Zuid-Holland are in a similar isolated position.

#### Opportunities for a skills policy

This study of skill-relatedness yields a number of policy recommendations and findings that can provide the basis for concrete policies. For example, it stresses the importance of avoiding reliance on activities that are unrelated to the current strengths of the region. In this context, clusters must be considered in relation to the branches of industry with which they share the labour market. The knowledge developed in these clusters helps cross-fertilization of these branches of industry. A concrete example of this is the skills required for the construction of greenhouses, which can also be deployed in other branches of the metal industry. Another concrete example is the complementarity of the pharmaceutical industry in Leiden and the heavy chemicals industry in Rotterdam, the latter of which is apparently not being used to best advantage at present. It would also seem to be possible to create new or larger alliances between the pharmaceutical industry and business services. The provincial authorities could initiate or facilitate these alliances where desirable (WRR 2013). This study further recommends that skill-relatedness should also be taken into

account in labour market policy concerning the clusters that are in a state of decline. Skill-relatedness can also play a useful role in education and training, and in helping the unemployed. For example, future employees can be made more resistant to turbulence on the labour market by designing training courses to take skill relations explicitly into account. To this end, training specialists should work together with companies from skill-related branches of industry to create training programmes offering a set of skills that are not only coherent and relevant to the branches of industry in question but also exceed the level of the individual sectors. Furthermore, unemployed people could be helped to find work by taking into account the extent to which they can be deployed in skill-related branches of industry. This means that the provincial authorities should stimulate labour market policy – a task they do not perform at present. From the perspective of skill-relatedness, the north-western part of the province (Leiden, The Hague and Delft) may be regarded as a natural extension of the Noordvleugel (northern wing) of the Randstad (Amsterdam and Utrecht) and vice versa. In particular, a joint approach by these two regions to education and training, and the re-integration of unemployed people into the labour market, would seem to be an obvious solution. In addition, joint attempts to attract companies from outside the region, in particular foreign multinationals, might also prove fruitful. Furthermore, it is worthwhile determining whether it is possible to set up joint ventures and trainings programmes in the southern part of the province (Rotterdam, Dordrecht and nearby towns) at the interface between greenhouse construction in the Greenport, the water & Delta technology cluster and the shipping part of the logistics cluster. Finally, architects and consulting engineers provide a link between manufacturing and construction sectors and business services, and can perform a pivotal function in the dissemination of knowledge. This branch of industry is large in Zuid-Holland, but has less skill-relatedness with the rest of the economy. It is therefore recommended that steps should be taken to determine whether architects and consulting engineers are in a position to perform their pivotal function.

### Foreign investment

A favourable position in the foreign investment network can stimulate growth in a region (Wall and Burger 2012). Although globalization is not new and develops cyclically, its impact has increased enormously in recent decades. Between 1970 and 1999, global trade grew by 5.4% per annum, and foreign investment by 11% per annum on average. Globalization is driven in particular by multinational companies, which form the building blocks of global production chains. Companies internationalize when the competitive advantages they can gain by operating abroad exceed the associated additional costs and risks. There are two types of foreign investment from the perspective of the internal organization of multinationals: horizontal (a business copies a number of the activities it already has in the home country, in order to cut

transport costs or spread markets) and vertical (a business gets certain tasks performed abroad, mainly in order to reduce factor costs). The investment may be aimed at production and marketing or at new, more sophisticated technology (R&D) and head-office functions. The latter group of objectives is most commonly found in Western economies. Apart from these investment motives, the quality of local institutions and the attractiveness of the living environment can also play an important role in determining the locations chosen by multinational enterprises. An unfavourable institutional environment (for instance, widespread corruption and excessive bureaucracy) can raise the costs of doing business and increase the uncertainty of operations. An attractive living environment, on the other hand, including such things as the availability of facilities and public services or a low level of traffic congestion, makes a region a good place for multinational enterprises to settle. An agreeable living environment can however also encourage foreign investment indirectly. Such regions will attract more people, in particular creative, highly trained employees with good communication skills and higher disposable incomes, who will in their turn attract multinational enterprises (Florida 2005). Finally, benefits of scale and imitative behaviour can also play an important role in determining which locations multinational enterprises decide to settle in. Multinational companies tend to choose regions that already have a high level of economic activity or where many other companies from the same sector are already located. These spatial-economic external benefits of scale are mainly related to the presence of a large, specialized labour market, the vicinity of suppliers and customers and more scope for exchanging knowledge and information through spin-offs, creative collaboration, business contacts and the work mobility of highly-trained personnel (Buckley 2006). Foreign investment in the Netherlands is nearly always at a higher quality level than domestic investment, because the companies involved will automatically bring along an international network, generate spill-over to local activity in the service and other sectors, and be prepared to accept a higher level of risk (PBL 2011).

It should be remembered however that Zuid-Holland has only a small share of the foreign investment to and in Europe (less than 1%). Nevertheless, the trade flow and establishment factors for the region suggest that it could attract a higher level of investment. Wall and Burger (2012) suggest that the provincial authorities should focus on seven specific promising segments (combinations of functions and sectors) in order to attract more foreign investment and improve the hub (global pipeline) function of the region and its competitive position. They should make use of the existing strengths embodied in the various main clusters of the province, which give it a competitive advantage, and should focus on attracting high-quality functions and sectors of economic activity that generate positive spill-over. More specifically, one can think here in terms of the functions and sectors where the region already possesses the necessary knowledge and skills. This approach would provide a basis for integrating the

acquisition activities more fully into the province's economic development strategy. The methodology adopted in the study is after determining the seven most promising segments to identify the main European competitors in each segment and then to examine the location factors that characterize these competitors.

Analysis of the functions and sectors that give Zuid-Holland a competition advantage<sup>3</sup> in Europe, good integration into the local economy in terms of skill-relatedness and a spearhead position (on the basis of evidence from policy documents) yielded seven segments on which the region could focus in its directed acquisition activities. These segments are (1) head offices of transport services (2) head offices of financial and business services, (3) head offices of software and IT services, (4) R&D facilities in the life sciences, (5) R&D facilities in software and IT, (6) production facilities in alternative energy, and (7) production facilities in the chemical and petrochemical industries.

Figure 8.4 lists Zuid-Holland's main competitors when it comes to attracting FDI (foreign direct investment) to these segments. Analysis of the competition factors relating to the seven segments yields important conclusions. Firstly, while different competitors are identified in each segment, a number of decisive location factors turn up again and again. Apart from market reach and benefits of scale, all investors want a highly trained, skilled workforce. More knowledge-intensive segments require more knowledge-intensive facilities, such as a top university and R&D investment. It was further found that high-quality segments also attach great importance to an international airport and to amenities such as theatres, catering establishments and educational facilities. These findings yield a much clearer understanding of the location factors that contribute to the success of a given segment. Deeper and more far-reaching study of the competition can provide a basis for a much more focused acquisition strategy. The analysis shows that although some of the most important factors such as agglomeration size and R&D intensity are difficult to influence directly, the other factors from Figure 8.4 do fit well into a development strategy aimed at creating a knowledge-intensive region, and are also compatible with a directed investment agenda. Zuid-Holland scores fairly well on most of these points.

<sup>3</sup> This may be because (1) a region is specialized in growth sectors (structural effect), (2) a region exhibits more growth in a particular sector than competitors (location effect), or (3) a sector in the region is shrinking relatively less than elsewhere (survival effect).

### Opportunities for greenfield strategy

We give a number of preconditions and recommendations for such a strategy. The results of the study indicate that a network approach will have to be developed to integrate insights at different scale levels. We also advocate proper harmonization of a foreign investment strategy with a regional developments vision based on the concept of a viable region characterized among other things by a variety of strong related provincial clusters. There is clearly a need to combine this concept with the results of the skill-relatedness study. A strategy that takes Asian economic activity, among other things, into account is needed to deal with the growing expansion in particular of Chinese



**FIGURE 8.4**  
**Competitors and competition**  
**factors for FDI segments in**  
**Zuid-Holland.**

Segment (share of European market)	Competitors	Decisive factors
Head offices / Transport (3%)	Antwerp, Hamburg	Specialization (cluster) Skilled work Infrastructure
Head offices / Bus. & Fin. services (0.5%)	London, Dublin, Barcelona, Amsterdam	Highly trained staff Amenities, Airport
Head offices / Software & IT (0.0%)	London, Dublin, Amsterdam, Paris	Airport Highly trained staff, Amenities
R&D / Life sciences (0.9%)	Oxford, Cambridge, Dublin, Budapest	Top university R&D level Highly trained staff
R&D / software & IT (0.0%)	Dublin, Budapest, Copenhagen	Highly trained staff University Amenities
Production / Alt. energy (0.9%)	Seville, Bari, Inverness	Natural resources Top university Infrastructure
Production / Chemistry (2.1%)	Lyon, Dortmund, Halle, Antwerp	Specialization cluster Infrastructure, Existing growth market

All segments: market access (economics of scale).

companies in Europe. This demands a thorough knowledge of culture and traditions, growth markets and localization preferences in this fast-growing FDI market. Development of this expertise is possibly even more important than maintaining the existing American connection (the FDI flow emanating from the USA).

Wall and Burger (2012) suggest that there is a large degree of competition between Zuid-Holland and the Amsterdam region for acquisition of the sectors and functions in question. It might be a good idea to work out a joint acquisition strategy rather than wasting energy in competition. It is argued in this context that greater complementarity between the towns and cities of Noord- and Zuid-Holland will yield a larger, more attractive urban region that is better able to compete with other conurbations in the vicinity. This approach could yield the required critical mass and associated benefits of scale. Previous research (Van Oort et al 2012) showed though that economic complementarities are not evolving on the larger scale of the Randstad (Noord- and Zuid-Holland), and that most cities in the region chose stimulating the same specializations (like ICT and distribution). The main recommendation here is therefore to

base an investment strategy (or in any case a list of investment priorities) on the outcome of location studies that are focused on Zuid-Holland's unique specializations of the harbour industrial cluster, the biotechnology cluster and the water technology cluster. Apart from access by road, which is particularly important for much business traffic and the transport (distribution) of goods, knowledge workers (who carry the key production factor – knowledge – in their head) also appreciate good public transport. In particular the R&D-intensive segments of FDI are found to respond favourably to investment in higher education and knowledge institutes such as campuses. This study showed further that investment in the living environment is important – but not decisive – for attracting investment in all segments. Subsidies and tax benefits are not really important for any segment, though they can be advantageous for capital-intensive investments in research facilities. Moreover, the study showed that specific, intensive promotion and support encourage investment in R&D and production facilities in software and IT, alternative energy, heavy chemistry and petro chemistry. The vicinity of Schiphol international airport should further not be underestimated as a factor enhancing the attractiveness of Zuid-Holland for foreign investors. Practically all foreign investors interviewed for the study confirmed that they particularly appreciated this factor, not only because of the hub function of the airport but also because of the distribution expertise and business services available in the airport cluster. A policy aimed at maintaining this hub function together with the reliable accessibility of Schiphol (in particular from Zuid-Holland) and the links with regional distribution and service clusters is likely to bear fruit for the economy of Zuid-Holland.

## **POLICY INSTRUMENTS: MULTILEVEL GOVERNANCE AND ACTOR-BASED NETWORK PLANNING**

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>> Increasing awareness of the importance of a tailor-made regional policy with varying roles for the different actors involved, and the increasingly decentralized role of the national government, underline the need for a regional planning philosophy that is characterized by co-development and knowledge generation, and that is governance-linked (Williamson 1996, Boelens 2009, Boogers 2013). The province's economic and spatial policy instruments can be deployed at regional, urban and local level to stimulate benefits of scale in a knowledge economy. This section deals with a suitable set of instruments to be used to achieve renewal via crossovers within and between clusters and sectors, and with the role to be played by the regional authorities in this context. An appropriate planning philosophy is needed to guarantee that these instruments do indeed ensure the necessary development, generate the necessary knowledge and are governance-linked. This philosophy involves a progression from quantitative facilitation to qualitative promotion, making use of the structuring effects of space, networks and infrastructure, via new alliances of administrators

at various scale levels, administrative decentralization, branding and acquisition, and the search for network alliances both within and outside the province. Policy initiatives that were previously based on abstract, relatively limited principles are discussed here at three different levels ranging from regional to local: the regional level, urban networks at the urban level and knowledge environments at the local level. Key to development on all levels is the network formation and functioning of firms and its employees. Clusters may help with this, but not all concentrations of firms have networked relations. Policy instruments should therefore focus on the interplay of (economic) network and spatial factors. Therefore, we end with labour market policy and knowledge valorisation policy, two fields in which the provincial authorities have to build up substantial network expertise.

#### **Regional perspective: Knowledge Axis**

The relation between skill-related growth opportunities and the location factors important for foreign investment must be considered before recommendations can be made about the policy instruments to be used and if necessary expanded by the province in order to increase the viability of the region in the current knowledge economy.

The region already has a wide variety of programmes and projects that are more or less in line with the knowledge economy perspective of our analysis. However, these programmes, planning concepts and projects often fail to address in sufficient depth the economic knowledge relations, possible spatial investments and required improvement of locations at which new activity can be established.

The concept of knowledge lies at the heart of the argument in this chapter. The spatial concept of a “Knowledge axis” has already been under discussion in the province for a number of years. This regional planning concept involves the idea of setting up a string of concentrations of knowledge institutes and high-quality, knowledge-intensive companies extending like beads on a necklace from Noordwijk to Dordrecht. It would include ESA Noordwijk, Leiden BioScience Park, Leiden University, the Shell Campus in Rijswijk near The Hague, Delft University of Technology, Unilever, DSM and Erasmus University Rotterdam. Regional planning concepts often lead a life of their own, and are rarely filled in in depth in the long term. This is also the case with the concept of the Knowledge Axis, where no clear links have yet been established between the economic dynamics, the knowledge economy and the conversion into a spatial plan. The line of argument presented in this chapter suggests that the Knowledge axis could be more than just a planning concept, but could provide an operational basis for the structuring of knowledge networks in the region. The skill-relatedness study shows that the multidisciplinary and complementary nature of economic activity in the region can provide many opportunities for renewal. Skill-relatedness can create a variety of potential opportunities, for example via knowledge environments such as campuses,

mixed living and working environments for creative freelancers and top management locations situated in an urban network of facilities that stimulate the knowledge-intensive development of clusters and structural economic improvement in the region. A focus on economic networks of firms is necessary for identifying and using these potentials – more than just the spatial conditions for firms and people to locate in certain places.

The cohesion and complementarity within the western part of the province supports a regional innovation system, providing a basis for cooperation between companies, knowledge institutions and the authorities in which the region can play a pioneering role. There are latent opportunities for cross-fertilization, but they do not arise automatically. Someone needs to play the role of a broker or developer here – this might be an appropriate task for a government organization or regional development company. The axis needs more mass, compactness and connectivity, both physically and in terms of knowledge development and cooperation. However, the province does not operate in isolation. Relations with surrounding regions or regions within the same network are just as important as intraregional relations for some skills and functions – for example with the Noordvleugel (northern wing) of the Randstad for business and financial services, creative industry and life-science specializations, with the Rhine-Scheldt delta and western Noord-Brabant for the water technology cluster, transport and chemistry, and even Brainport in the southeast of the Netherlands, around Eindhoven, Tilburg and Maastricht, for high-tech systems and Wageningen for specific life-science segments. Although a number of important strategic alliances already exist with the Randstad and Noord-Brabant, links with Brainport and Wageningen would form a useful supplement. Actual integral regional development and the setting up of an investment agenda and local projects and execution strategies in the province is a complex administrative task. Skill-relatedness and the implementation of foreign investment can provide the basis for continuous long-term monitoring that maps crossover opportunities between sectors, growth segments and international investment segments.

### Urban Perspective

The relatively large scale of the province or the Knowledge Axis is needed to bring such actors as entrepreneurs, companies, financiers and policy-makers in contact with one another. As an extension of this, the larger cities are the key players within the regions. Each one marks the centre of gravity of one of the clusters, but has to look further than its own production and knowledge environment to pick the fruits of its own scale benefits and knowledge economy. Although the business world and knowledge institutions are largely self-organizing and innovative, studies of skill-relatedness and foreign investment suggest that more consultation between companies and institutions in cities in the region can lead to complementarity and renewal. This demands an active,

cooperative stance from the urban authorities. The recognition of potential risks and opportunities is however a precondition for urban and cluster renewal. The cooperation must transcend administrative boundaries, and must be based on new alliances in a specific region, and a specific network, at specific moments.

The harbour industrial complex, the Greenport and the water and Delta technology cluster have already provided support for the provincial economy for generations. They also have a powerful effect in determining the policy options at urban (network) level. This chapter indicates a number of threats in this connection, together with strategies that can enhance the viability of the core clusters. On the one hand, the FDI study suggests that it may be advisable to strengthen specific functions along the production chain such as management (head offices) and R&D, while on the other hand the skills study addresses the peripheries where clusters such as IT and logistics, transport, greenports, biofuels (renewable energy), chemistry and refineries overlap. One of the risks is that the transport cluster is gradually losing its grip on the labour market and has always specialized on relatively low-value sectors. This may give rise to problems, especially now that the transport cluster is getting the potential to grow as provider of high-quality services such as value-added logistics. Similar risks are found in the chemical sector, where the poor links with the labour market may threaten innovative trends such as that towards a bio-based economy. The Greenport in Westland, to the west of The Hague, offers rich opportunities for cross-fertilization with transport, bioengineering, nutrition, IT, metals and marketing. Lack of space may be a problem here, however. The restructuring of existing locations is stagnating, and there are limits to the supply of large-scale new locations that can compete effectively with locations outside Zuid-Holland. This would seem to indicate that the Greenport is no longer the economic leader it used to be in Zuid-Holland. The specialization in R&D-intensive bioengineering and greenhouse construction may be small-scale at present, but it does offer opportunities of development to a higher-quality profile. There is further a need for concentration on spatial policy, preservation of the existing areas of concentrated horticulture under glass, possible integration with the transportation system in the Port of Rotterdam, and scope for high-quality services in R&D, trade, marketing and technology. These services will need to be based in an urban environment, focused on high-quality facilities in an urban network. Complementarity between cities and other locations remains an important consideration in this context. Moreover, cities must avoid trying to specialize in all growth sectors at the same time. Leaving business over to others is one of the most difficult strategies for policy-makers to learn, but it is one that they need to master. Optimal transport links between urban knowledge centres, facilities and living accommodation are needed to provide an overall environment where healthy development is possible. This brings us to the need for an effective local perspective.



### Location perspective

Spatial economic policy in the Netherlands has so far been aimed at keeping different activities apart to avoid adverse external effects. Maintaining a distance between work, residential and recreational activities and nature was the policy adopted to prevent companies from giving rise to nuisance. The challenge in a viable innovative knowledge economy, on the other hand, is to bring different actors together to create positive synergies. This allows them to meet more easily for knowledge exchange, network formation and joint use of facilities. Modern knowledge workers also set much higher requirements on the quality of the work environment. This is facilitated by the fact that new economic activities (production of software and content, inventions and discoveries) often generate little or no nuisance. Key examples of this in Zuid-Holland are knowledge environments such as campuses and science parks (in appropriate shapes and sizes), conference centres, central business districts, international and diplomatic institutions, R&D centres, and mixed work and residential areas (De Hoog 2012). The modern design of such locations can lead to unexpected biotopes and breeding grounds. Despite some criticism of campuses in particular (“the self-organizing power of companies and universities seems to know no spatial bounds”), the spatial concentration of knowledge workers does offer perspectives of enhanced learning and interaction. There are limits to this tendency, however. The conditions for the growth of campuses and any other large knowledge centre must be closely monitored. Interactive environments can also be created in other forms than campuses, such as mixed work and residential settings, meeting places, high-quality facilities and residential environments for knowledge workers. This urban service-economy model works better for bioengineering, IT and business and creative services than the industrial production model, which is appropriate for chemistry, transport and horticulture. Spatial policy in Zuid-Holland also covers the complex tasks of providing both physical space and infrastructure such as business parks with multinodal access geared to the needs of both domestic and foreign companies, restructuring and transformation, as well as the creation of interactive environments that can facilitate skill crossover and the embedding of foreign investment in facility- and knowledge-rich surroundings.

### Labour market and valorisation

Although spatial conditions can be set, networks of firms and knowledge-workers are the real driving force of cluster dynamics. Therefore, two policy tasks should be noted that were flagged as important by the skills study but are not currently considered by the province as part of its core competences. The first of these is monitoring and stimulating the labour market. Skill-relatedness can play a useful role both in the (re)training of the unemployed and in helping them to find work. For example, future employees can be helped to deal more effectively with turbulence on the labour market by ensuring that the training

they receive takes skill relations explicitly into account. To this end, training specialists should work together with companies from skill-related branches of industry to create training programmes offering a set of skills that are not only coherent and relevant to the branches of industry in question but also exceed the level of the individual sectors. Furthermore, unemployed people could be helped to find work by taking into account the extent to which they can be deployed in skill-related branches of industry. In line with the often cited self-organizing power of economies (Boschma and Lambooy 1999), knowledge institutions with their education and training curricula and valorisation objectives, and the business world with its internships and internal training courses varying from one branch of industry to another, are possible candidates to perform this task. But when long-term discrepancies are found between the skills acquired by graduates and those demanded by business (Venhorst 2012), it is unclear who is to take responsibility for qualitative labour market policy. Alongside the central government and municipal bodies, the province would also be able to play a role in co-ordinating and initiating such moves, on the basis of the insights gained from our study. Secondly, frequent references are made in the literature to the role a regional authority can play as an ambassador and coordinator of innovative development ("regions as agents of change"). Although the role of knowledge broker is not an obvious one for the provincial authorities (as mentioned above, knowledge institutions and companies are generally held to have a higher self-organizing power), some arguments in favour of regional authorities adopting a leading role in this field did arise in the course of this study. In any case, cooperation with other actors and administrative layers is certainly essential in this context, and investments will have to be made to support these activities.

## CONCLUSIONS

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>> The main question posed in this chapter is which spatial and economic set of instruments a regional authority such as the province of Zuid-Holland needs to deploy to ensure more viability and opportunities for renewal and growth. An evolutionary geographical approach to this question leads to a new development strategy. While the economy of Zuid-Holland does have some new, innovative sectors (and some existing clusters that are undergoing regeneration), their growth and regenerative power do not outweigh the larger, long-established clusters that are nearing the end of their economic life cycle. This will have an adverse effect on the growth viability of the region in the long term. Diversification to growth segments with a good strategy is needed in order to revitalize the regional clusters creating the greatest added value – horticulture, the industrial complex around the Port of Rotterdam and the water and Delta technology cluster. Attracting foreign investment for these growth segments rounds off the regional development vision presented here.

Overlap in skills, expertise and applied technologies links the individual sectors more strongly to form clusters, which largely share the same knowledge base, but make different products. Combination, complementarity and cooperation should then contribute to cluster formation and regeneration. Opportunities in skill-related sectors reinforce the existing clusters, but also form cross-overs to other sectors in ways that are sometimes expected (such as the growth of services in nearly all sectors and the growth potential of the life sciences), but are often unexpected (such as the possible diversification of the economy to include creative industries, aircraft construction, head offices, the optical industry and sustainable energy). Foreign investment enhances the regional development potential because it embodies a built-in international network by definition, offers a wider knowledge spectrum than local companies thanks to the link with the mother company and possibly with other organizations elsewhere, and focuses on the top of the market with the corresponding attitude to risk. Foreign investment focuses on the existing clusters, and often reinforces them. Investment in R&D, and in head offices (which strengthens the role of management), often leads to regeneration. Analysis of shifts in global and European investment flows shows that it is these aspects of FDI that are particularly effective in creating successful segments within the existing clusters.

The research presented here has implications for Dutch regional and sectorial development policies. Since the Netherlands focuses on cluster policies for local economic development, designation of top sectors (an approach that may be described as “picking winners”) is expected to foster employment and productivity growth in the current knowledge economy, and firms in these sectors should contribute to international competitiveness. This chapter highlighted some of the problems associated with this approach. Firstly, the designated top sectors may have little incentive to work together on renewal and innovation. There are many potential crossovers between sectors that are not distinguished or rewarded in the current Dutch policy system. Our focus on skill-relatedness may help to stimulate cooperation. Secondly, there is no explicit regional focus on sectorial policies. This is unfortunate, as our analysis shows regional cluster setting to be of great importance for competitiveness and innovative development. Thirdly, international connectivity in networks of foreign direct investment (FDI), trade and knowledge is an important facilitator of the economic growth of firms and regions (“global pipelines”) alongside regional clustering embodying knowledge transfer and learning mechanisms (“local buzz”). We focus on FDI networks in this chapter to distinguish opportunities for growth in segments of the Dutch province of Zuid-Holland.

The evolutionary economic geography concepts and theory introduced help to explain why regions evolve economically as they do. The concepts of related variety, specialization and diversity in the production structure, relatedness of

sectors in terms of skills and human capital, the selective nature of competitive markets and the self-organization and path-dependent development of local production structures and global networks were particularly informative in this context. The discussion of policy instruments in section 4 made it clear that policy strategies need to be refocused, with greater emphasis on the value of multilevel governance and actor-based relational planning. Different actors play key roles at different spatial levels. We explained the policy implications of this evolutionary network approach at regional, urban and local levels in the current knowledge and network economy. It is important to stress that relations between the different levels are not straightforward: investment at the local level does not necessarily lead to more growth opportunities at higher levels, and vice versa.

Smart governance and the content and process of provincial policies  
The project 'Resilient Region' (Van Oort 2012) – on which this chapter is based – was also one of the first research-projects within a new strategic research programme of the Province of Zuid-Holland. The programme is one of the tools to generate focus on strategic goals for the regional agenda's and planning instruments of the province. It also invests in possible alliances between different parties in the southern part of the Randstad. 'Resilient Region' was therefore also part of a learning environment how to better combine and embed scientific research and policy-making within a changing governance approach. An approach which does not only address a stronger responsibility of the provinces concerning spatial and economic policies in the Netherlands, but also a different economic context and a more adaptive way of working together on spatial and economic strategies (Boogers 2013). For the perspectives of each city in the Netherlands a high quality state government performance and a high quality EU government performance is also crucial. We already identified several layers of governance within the province (regional, urban and location levels). This is identified in the international debate as multilevel governance. As it goes for private multinationals that their performance depends on the quality of the plant management as much as the top strategic management, this also goes for public governance. Smart governance is increasingly about the interfaces and interplays between different levels of governance (Teisman 2014). Typically, the ability to grab the chances for competitiveness and to deal with the threats is not about the choice of the most optimal level of governance actions, but much more about how the actions on different levels create a smart set of joint actions. The governmental context of the province is the devolution of spatial- and economic policies and instruments in the Netherlands from the national to the regional level. Simultaneously, spatial policy is more and more framed within economic policy goals of competitiveness, innovation and growth. The province states it wants to offer an attractive production climate for an innovative, diverse and therefore also resilient economy.

There are several lessons learnt for the province. Identifying and exploiting advantages of the knowledge economy turned out to be no one-size-fits-all strategy. Instead, a multilevel framework with local, urban and national determinants of development are important to recognize. This also means that policy responsibilities are shares between governance levels. The most important shift in attention for the provincial policy is arguing from quantity (in number and sizes of business sites, kilometers of road and areas for living) to quality (of living and working areas, amenities, and knowledge stimulation). A regional policy mix that is co-evolving with major determinants, is knowledge driven and is based on leading governance principles is now implemented in the new provincial structural plan. Discussions with knowledge institutes and firms in the region show that chances for crossover are latently present in the region, but do not develop automatically. A broker role is necessary – either by the province or the regional development agency.

Further lessons concern the implication that regional policy is not only about avoiding negative externalities of all functions present in the region, but also stimulating innovative economies by facilitating spatially and economically important (network) factors. Agglomeration and network advantages and prioritized clusters are important aspects in this, but tailor-made living and working environments prove important determinants that require knowledge and investments by the regional government. Economic development in Zuid-Holland is not backed up as easily by growth sectors in emerging phases of their cluster life cycle as in Amsterdam or Utrecht (Van Oort et al. 2013). Concentration of efforts in the Knowledge Axis may prove effective, as long as functional networks of firms locally co-evolve. But also interregional cooperation with Antwerp (Rhine-Scheldt delta), other cities in Randstad Holland, Wageningen life science cluster and Brainport Eindhoven are important to consider. Diversifying the Zuid-Holland economy by linking to own latent strengths and strengths elsewhere is in line with the local-global development strategy in regional development. <<





# >> Public Private Partnerships

## Pursuing adaptive qualities in spatial projects

Frits Verhees and  
Jos Arts

### INTRODUCTION

>> Public Private Partnerships (PPP) can be considered as practical instruments for spatial and infrastructural planning. Governments all over the world increasingly use this instrument to create (social) infrastructure, urban development and (other) public services. While the development of the PPP concept is dominated and influenced by technical, engineering and commercial sciences (Aziz 2007, OECD 2008), the 'creation' of space by governments is the realm of planning science (Forester 1989, Healey 2006). However, the role of governments in the spatial and infrastructure planning has been challenged more and more (Arts 2007, van de Klundert 2008, Flyvbjerg 2003). In response to this PPPs are put forward (Flyvbjerg 2003, de Roo, Hillier & Van Wezemael 2012). Yet the framing of the situation and the approach of such PPPs in spatial planning seem to be still very much traditional. We think that the concept of PPP and its application in spatial projects can profit from recent developments in planning theory especially the latest insights in complex adaptive systems.

In this chapter we aim to reflect on the PPP concept from the perspective of recent planning theoretical insights in order to reconsider the framing of PPP. These insights emphasize non-linear behaviour of (spatial) systems and give rise to reconsider the way governance of spatial development and projects is organized. We call this new perspective 'adaptive planning' and discuss how it could be used to create PPP projects and results, which really deliver 'value for money' throughout the whole life-cycle of spatial and infrastructure projects. The essence of this chapter lies in the exploration of planning theory, connecting this theory to complexity sciences and learning lessons on how to guide large spatial projects in innovative ways. These insights are applied to PPPs to bring into the light the possibilities, results and successes of these partnerships pursuing adaptive qualities. This chapter is based on recent PhD research (Verhees 2013), which focused on the following problem and goal statement: "Large projects undertaken by the Dutch government often do not produce their expected results. As a result, spatial and infrastructural problems in Dutch society are not always adequately addressed, government funds are (in those cases) potentially wasted and in addition this causes damage in relation to the legitimacy, reputation and the actions of the government. The social significance of solutions to this problem is therefore high. Public Private Partnerships (PPP) are viewed as a potential (contribution to a) solution. Complexity sciences may provide answers and a different view of influencing spatial systems in the present times and the planning issues arising from these with which large projects in the Netherlands are confronted. Based on these insights recommendations can be formulated that can be applied within PPP planning practices in the Netherlands" (Verhees 2013, 14).

We focus on practice in the Netherlands as this country has a longstanding tradition in planning (see e.g. de Roo 2003, Faludi & van der Valk 1994) and last decades much experience has been gained in the application of PPP in Dutch planning at which achieving spatial quality has been an important issue (see e.g. Reynaars 2014, Verhees 2013, Lenferink 2013, Eversdijk 2013, Klijn & Teisman 2002). However, we think this study is relevant to a broader international audience as PPPs are applied worldwide and also in other countries there is a need for strengthening adaptivity in the planning of large spatial and infrastructural projects.

In this chapter we will touch upon the results of the above-mentioned study into PPPs pursuing adaptive qualities. We will describe the developments in planning theory since our view is that little attention has been paid to the knowledge that the latest developments in this theory can bring to theory and practice of PPPs. Regarding this, the question is where we can position complexity thinking in the planning theory debate? It is important to learn from scholars who already made efforts to connect, compare and integrate complexity thinking in (spatial and infrastructure) planning theories. This brings us concrete ideas about indirect ways of steering through planning processes and projects as an alternative to more direct interventions. Thereafter we compare the theory behind PPP to that of adaptive planning. Subsequently we discuss some recent case studies, on basis of which we draw conclusions regarding the Whether, How and When of PPPs as a concept for pursuing adaptive qualities in planning practice.

## DEVELOPMENTS IN PLANNING THEORY

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- >> From World War II onwards, work in planning theory resulted in the development of various normative, recommended planning methods over time (Allmendinger 2002, de Roo 2007, Forester 1989, van Vught 1979, Salet & Faludi 2000, Healey 2006, Huxley 2000). These planning methods were ranging from:
- technical-rational to
  - communicative planning methods.

Technical-rational planning developed after World War II considered planning as a technical, procedural and functional instrument in order to rebuild Europe. This goal of rebuilding Europe was undisputed. The planner was like an architect drawing and planning new infrastructure, towns and suburbs. The implicit assumption was that their plans were executed 'automatically'. During the following decades awareness grew that this assumption did not prove to be true. Spatial problems became more complicated in themselves. Also, stakeholders demanded more influence on the planning process and decisions taken. The result was a planning based on the principles of fair communication



between all stakeholders, based on reason and arguments. Together they create an agreed reality – instead of a factual reality envisaged in technical-rational planning.

This process has resulted in two recent consecutive developments in planning theory that try to deal with an increasingly more complex world, a world in which plans were not implemented automatically. The first development is the contingency theory, in which the planning method is assumed to be dependent on the static complexity of the planning environment: the diversity of actors with different objectives and the substantive complexity of the planning object (Rittel 1972, Bryson & Delbeque 1979, Christensen 1985, Forester 1989, van de Graaf & Hoppe 1996, de Roo 1999 2004 2007, Woltjer 2000). The other one is the network theory, which departs from the idea that planning takes place in a network of interdependent actors each with their own objectives, information sources, means and power whereby policy formulation and implementing activities are defined in consecutive decision-making cycles (Teisman 1998, de Bruijn & ten Heuvelhof 2007).

In both approaches planning and planners are still positioned as leading the content and (other) actors involved in a (spatial) problem. But when we look through the glasses of ‘complexity thinking’ we find planning and planners as part of the system, as part of all actors in a system. This has led to a development in which planning is considered to be itself a part of the (dynamic) complex adaptive system that it attempts to influence (Ashby 2004, Waldrop 1993, Gershenson 2007).

In this regard the development of planning theory seems to run in parallel to developments of system theory – see Figure 9.1. Systems theory can be seen as a bridge between planning theory and the complexity sciences (Waldrop 1993, de Roo & Silva 2010). We can position the development of planning in light of systems theory. This leads to a (new) base for learning by (spatial and infrastructure) planners (also in PPP projects as a planning instrument) that is related to new insights in and research into complex adaptive systems. Key to this insight is that planning can exercise influence not by developing content, not by planning the process or organization, but by planning the context of a system (see Figure 9.1 and 9.2). This corresponds with the notion that society and its spatial representation is a complex adaptive system – not a linear, closed system – that therefore should be influenced and treated accordingly.

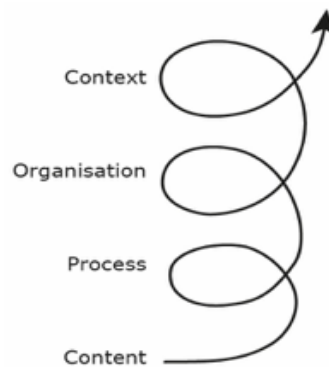
## COMPLEX ADAPTIVE SYSTEMS AND ADAPTIVE PLANNING

➤➤ The key contribution of complexity thinking and complexity sciences to planning is the idea that complex adaptive systems, in which planning occurs,

**FIGURE 9.1**  
Developments in planning  
theory and systems theory.



**FIGURE 9.2**  
Development in planning  
theory: from content to context.



are most 'sensitive' to the influence exerted by the context (Schoemaker 2002, Gemmel & de Raedt 2008, Roose 2002, Taleb 2010, Rhodes 2008).

Regarding complex adaptive systems various definitions are currently in circulation. For instance, Johnson (2009) defines a complex adaptive system as follows:

- The system contains a collection of many interacting objects or agents;
- These objects' behaviour is affected by memory or feedback;
- The objects can adapt their strategies according to their history, in the hope of improving their performance;
- The system is typically open, meaning that its environment can influence the system.

In recent planning theory literature, various scientists and professionals have been establishing relationships between planning, the complexity sciences and the concept of complex adaptive systems. These contributions emphasise such issues as:

- Time and small crises over time, as a result of which complex systems and planning co-evolve and adapt to influences and developments within their context and within other systems (Bertolini 2007, Geldof 2001);



- The importance of careful and indirect planning and a long-term view. Minor interventions in cities and urban development can have far-reaching and undesirable consequences. Incentives and performance-based plans can guide the development of the system (Batty, in de Roo & Silva 2010, Hillier 2008);
- Variation and empowerment through means of structural interfaces, for example by linking the private system to the public system as a result of which they start to interact (Van Assche & Verschraegen 2008, Jessop 2003); Planning as a process of adaptation. In relation to this subject, authors talk about keeping the system on track through means of project management and modifications required at the same time through means of process management (Teisman 2008, Klijn 2008);
- Planning as part of a complex adaptive system. Influencing the system level, metagovernance or metaplanning, forms part of this. “Metagovernance refers to ‘the management of complexity and plurality’ ” (Innes & Booher 2010, 211).

The literature mentioned above is used as a basis for describing a planning approach based on a complexity theoretical perspective: adaptive planning. In adaptive planning steering (‘guidance’) has to be indirect. In adaptive planning indirect (meta)planning becomes an issue when focussing on the system of private and public actors that subsequently organises / reorganises itself and adjusts the direction of development. This can happen by promoting the variety (of involved actors and strategies by a good balance of exploration and exploitation – see March 1991), interaction between the actors and the selection of actors/strategies through means of incentives and rules. Planning does not create a final image, nor does it propose a physical design to be reached at a moment in time. Instead, through creating interaction amongst actors and by means of selection via performance criteria planning might trigger a variety of contributions and select resilient solutions for and guidance of the process of a (spatial or infrastructural) development in time (Verhees 2013). The objective of such adaptive planning is ‘adaptivity’, which means that the system maintains its desired course (no precise final image) and at the same time is capable of absorbing surprises and changes (Teisman & Klijn 2008, Rhodes and MacKechnie 2003).

Axelrod and Cohen (2000) provide a suitable action and analysis framework regarding adaptive planning. This framework is structured on the basis of the main elements that are of importance to influencing complex adaptive systems: variety, interaction and selection – see also Figure 9.3. Axelrod and Cohen believe, and we as planning scientists embrace the idea, that influencing a complex adaptive system still is possible. “In a world of mutually adaptive players, even though prediction may be difficult, there is quite a bit you can do. Complexity itself allows for techniques that promote effective adaptation”

**FIGURE 9.3**

**Framework influencing complex adaptive systems, Source: Axelrod and Cohen (2000).**

Element	Aspect
Variation	<ol style="list-style-type: none"> <li>1 Arrange organizational routines to generate a good balance between exploration en exploitation</li> <li>2 Link processes that generate extreme variation to processes that select with few mistakes in the attribution of credit</li> </ol>
Interaction	<ol style="list-style-type: none"> <li>3 Build networks of reciprocal interaction that foster trust and cooperation</li> <li>4 Assess strategies in light of how their consequences can spread</li> <li>5 Promote effective neighborhoods</li> <li>6 Do not sow large failures when reaping small efficiencies</li> </ol>
Selection	<ol style="list-style-type: none"> <li>7 Use social activity to support the growth and spread of valued criteria</li> <li>8 Look for shorter-term, finer-grained measures of success that usefully stand in for longer-run, broader goals</li> </ol>

(Axelrod & Cohen 2000, p. 1-22). What we also find attractive is that Axelrod's and Cohen's framework gives (latest) planning theory an opportunity to take a step towards (current) planning practice such as concrete PPP projects: "Our contribution lies in our attempt to move the work beyond metaphorical affinities and to distil an explicit method that can be applied in practice".

## PUBLIC PRIVATE PARTNERSHIPS (PPP) AND ADAPTIVE PLANNING

>> Understanding of PPP and its determining elements is key to position PPP in a planning and complexity theoretical perspective. To this end we use the description of adaptive planning and the associated elements in Figure 9.3. We see PPP as a possible and promising instrument of (spatial and infrastructure) planning. We discuss if this increasingly used instrument may fit to the concept of adaptive planning.

PPP is a growing phenomenon (Rosenau 2000, Aziz 2007, Iossa et al. 2007). This applies to the Netherlands as well (Verhees 2013, Lenferink 2013, Klijn 2009). PPP combines the added value of public and private parties. In the development of the thinking and operation of PPPs, there is a perceptible shift in views of the added value that private parties may provide in developing and managing public projects. Where initially the primary focus was on financial added value through means of the private financing of public projects with a shortage of public funds, focus shifted to also the high degree of efficiency, expertise, experience, specialisation, discipline and decisiveness of the private sector (Aziz 2007, Osborne 2000, Bult-Spiering 2003, OECD 2008, Priemus, Flyvbjerg, van Wee 2008).

The main motives for governments to opt for PPP as a solution to spatial and infrastructural challenges are as follows (see also Commissie Private Financiering van Infrastructuur 2008):

- To counteract persistent project budget and schedule overruns by putting financial burden of these overruns on the shoulders of private consortia dealing with planning of the projects;
- An urgent need for investment combined with a lack of available government budget leeway over the short term by introducing private financing;
- A need for better performance by introducing cuts on income of private consortia during the operations and maintenance phase (long term) in the case of poor performance of service provided.

On basis of an extensive literature review Verhees (2013) summarizes the key elements that characterize the planning method of PPP projects:

- Creation of added value through collaboration and interaction between private and public actors;
- Financial commitment of the private sector;
- Risk sharing between the private and public sectors;
- Focus on delivering public functions and services (through means of output and performance specifications);
- Life cycle approach within a long-term relationship (ranging from planning up to and including management and maintenance).

PPP now can be tested on the basis of the elements influencing complex adaptive systems in order to allow us to assess whether PPP in theory could be a form of 'adaptive planning' (see Table 2 and also de Roo, Hillier, Van Wezemael 2012, van Ham & Koppenjan 2002, Edelenbos & Klijn 2007, Wettenhall 2008). To our opinion PPP has good papers to be a form of adaptive planning – see Table 2 – which we will discuss in more detail by examining some practical case studies. However, before doing this we provide in the next section some exploration of planning in the Netherlands.

## COLLECTIVE BELIEFS CONCERNING PLANNING IN THE NETHERLANDS

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>> When looking at the institutional framework for (infrastructural and spatial) planning in the Netherlands, we can distinguish the preferred status ('attractor') of our spatial planning system in complexity theoretical terms. This institutional framework helps or hinders a planning approach based on adaptivity. In the previous section we conclude that PPPs may be useful for adaptive planning – see Figure 9.4. In the Netherlands, however, planning and also PPPs have usually been framed in a rather technical-rational and 'contract-driven' approach.

**FIGURE 9.4**

**Related elements of PPP and adaptive planning, Source: Verhees, 2013.**

#### Key elements of PPP

- Creation of added value through collaboration and interaction between private and public actors
- Financial commitment of private sector
- Risk sharing between private and public sectors
- Focus on delivering public functions and services (through means of output and performance specifications)
- Life cycle approach within a long-term relationship (ranging from planning up to and including management and maintenance)

#### Elements of Complex Adaptive Systems

- *Variation* through means of exploring new opportunities
- *Interaction* in a network of mutually dependent actors
- *Interaction* in a network of *mutually dependent* actors
- *Performance criteria* for the selection of the best strategies and actors *throughout the entire process*

The reason behind this is the Dutch collective belief concerning spatial planning and spatial projects. This collective belief system tends towards (Boelens 2010, Faludi & van der Valk 1994, van den Brink 2009, Van Assche & Verschraegen 2008, van de Klundert 2008):

- A government monopoly;
- A separation between public and private;
- A preference for research and substantive details;
- Legal recording and control of procedures and content.

This traditional, technical-rational and rule-driven frame conflicts with the potential of PPP to be a form of adaptive planning (Figure 9.4). The result is that PPPs are affected by a conflict between belief systems. Doing PPP in the Netherlands is 'planning in two worlds'. One world contains a number of government actors with a perception of technical-rational and rule-driven planning. A government that plays almost all roles in planning, even when these roles conflict (Flyvbjerg 2003). The other world contains private parties and citizens with a perception of spatial planning, which they believe they can influence and even want to jointly shape on the basis of real means (resources and knowledge). In practice these 'worlds' do not easily converge, while this is in fact the intention of PPP-based planning. Various examples and research from actual practice support this phenomenon of different views on the roles of actors in relation to the planning of large projects (Teisman 1998, van Ham & Koppenjan 2002, de Graaf 2005, Klijn & Teisman 2002).

## ANALYSING ADAPTIVE PLANNING IN PPP CASES

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>> We have conducted three case studies into PPP using the framework developed by Axelrod and Cohen (2000) and also looking into the role of actors in these projects:

- A2 Maastricht Tunnelling and Highway (infrastructure and area development; D&C (Design & Construct) and Development Contract).
- Waardse Alliance (rail infrastructure; Alliance Contract).
- Montaigne Lyceum (school building; DBFMO (Design, Build, Finance, Maintain & Operate) contract).

It appears that 'adaptivity' in each PPP case study only partially manifests itself. PPP in actual practice therefore does not always equate to 'adaptive planning' (Verhees 2013). In the case studies adaptive planning becomes manifest in various ways and in different planning phases, which we are going to elaborate upon below. The question is whether we can find patterns in these manifestations of adaptation in these PPP planning cases.

### A2 Maastricht Highway Planning and Design Phase

The starting point, the framework applied by the collective government organisations, for the A2 Maastricht highway project was formulated at the start of the process, in the planning and design phase. The framework specified that the A2 will not loop around Maastricht but will be constructed underground through Maastricht, redesigning the newly created space above the tunnel. As a consequence, the scope of this project included both infrastructure and spatial development. In relation to this various authorities were involved and signed a cooperation covenant at the start: the Ministry of Transport, the province of Limburg and the municipalities of Maastricht and Meerssen. This operating basis, which was converted into a functional Programme of Requirements, proved to be sufficiently broad that it allowed for exploration. An important factor in creating this room for exploration was that government was not translating itself the project into the relatively detailed (Draft) Route Decision (the traditional planning approach) but created a parallel process in which public planning procedures and procurement procedures have been interwoven (see Lenferink et al. 2012).

The exploration in this interweaved planning and procurement process was directed and stimulated through the use of so-called 'desirables' (in other words performance criteria as the means of selection), competition and a highly competent jury involved in the selection process. The link between spatial development and infrastructure has also created much room for creative exploration of a broad variety of solutions. The performance criteria have been derived from the overall objectives that from the outset were linked to this project and the planning process. This has been the basis for the adaptivity of this project phase in Maastricht. However, this opportunity would never have



been seized had there not been a well-organised interaction (between planning and procurement, between infrastructure and spatial development and between government and market).

The interaction between the actors in the individual private sector partnerships (consortia) and in the public partnership, as well as the interaction between the private consortia and the (public) Project Office functioned well due to the following:

- The need for collaboration (reciprocity; without the cooperative relationships there would have been losses (private sector motivation) or the tender would have failed (especially a public motivation)).
- Creating and working on independence and an own identity (and own authorities) on the part of the Public Project Office and the private consortia. They each form a clear unit.
- Consciously planned and directed information flows.

#### Waardse Alliance Realisation Phase

In the rail infrastructure project of the Waardse Alliance (part of the freight rail from Rotterdam to Germany) the private consortium HBSC tendered a design for the realisation phase. This design was not used a straightjacket as would have been the case in the traditional approach, in which such design is a tight operating base from which it is neither possible nor permitted to deviate (as a result of which exploration may not be possible anymore). The operating base in Waardse Alliance was considered as a reference design. Exploration of various solutions has been stimulated in order to challenge and improve the design and its subsequent realisation resulting in cost savings and a satisfied community. Exploration has been effected by applying (five) Critical Success Factors (performance criteria) and by a selection process conducted by the Alliance's Management Team and Executive Board. These performance criteria were derived from the overall objectives the project intended to achieve, Railinfrabeheer / ProRail (representing the government) monitoring the framework within which this process took place.

This has proven to be the basis for the adaptivity that characterises the realisation phase of the Waardse Alliance case study to such a significant degree. However, this would not have been possible without the consciously organised interaction, given substance in the form of an integrated Alliance organisation comprising the two partners: public (Railinfrabeheer / ProRail) and private (consortium HBSC). This interaction made it possible to develop successful solutions during the ongoing construction, consistent with the (most recent developments related to the) five performance criteria. The success of the Alliance is due to its own identity that it managed to develop, creating a focused organisation from the parent organisations and bringing the employees of the Waardse Alliance close together (into a single entity with a single objective

– the project objective – in a single building). As a result the project interests became a priority and the parent organisations acted at only ‘arm’s length’ by setting themselves up as ‘shareholders’. The parent organisations did not exert influence on the basis of their own organisation’s interests and did not engage in any hierarchical interventions outside the Alliance management structure. The Alliance organisation was given room to act and to allow its own identity to grow.

### Montaigne Lyceum Management and Operational Phase

At the beginning of the management and operational phase of the Montaigne Lyceum PPP (high school) project, the private consortium based its approach on the DBFMO contract and considered this as the operating basis for distributing the scope and associated budgets among the various parties (and interests) within the consortium. This resulted in major tensions with the public party whose primary interest was achieving the project’s objectives. This resulted in a rigid (‘contractual’) system that did not move in tandem with developments and in fact held on to the past. There were many conflicts.

Due to this crisis the parties had to discuss how to overcome the various tensions. This resulted in a more adaptive approach, which ultimately emerged and is based on two mechanisms that go hand-in-hand:

- The DBFMO contract is no longer interpreted to the letter, but rather in terms of its spirit. The project’s main objectives have become a priority rather than the detailed elaboration of resources. This means that the private consortium considers and applies the detailed elaborations and agreements in the DBFMO contract as a reference point from which deviation is permitted as soon as the original project objectives (output specifications) and rightful signals of users warrant this. There is room for exploration of various solutions due to the project’s integral character with interfaces between design, construction and maintenance and (substantive) interfaces between architecture, technical services and facilities services. This enables the private consortium ‘TalentGroep’ to explore various options within the budget and to select the best solution for the project’s main objectives. The long-term character of this PPP and a system of fines are key factors underlying the above-referenced development in the management of this school.
- Better interaction within the private consortium that will begin operating as a single entity. This consortium is given independent playing room and seizes this opportunity, as a result of which it is also acquiring its own identity, separate from the parent organisations. In addition, the role and influence of the ‘users’ (teachers and students) is becoming greater.

## CONCLUSIONS AND DISCUSSION

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>> In this contribution we have discussed the relevance of PPP as an instrument for pursuing adaptive qualities in infrastructure and spatial projects. To this end we have explored developments in planning theory, planning and PPP practice in the Netherlands, developed and analyzed three PPP cases.

When comparing the roles of actors in these three case studies it can be concluded that there has been a clear division of several roles in the above-referenced 'adaptive' phases:

- The private consortium acts as initiator with its own identity;
- The public consortium/public party takes and monitors the selection decisions and does not intervene in or takeover the initiator role of the private development consortium;
- Users, residents and/or special interest groups are given an explicit, valuable and suitable role as criticaster, as 'adapters' of the initiatives and plans.

For PPP as an instrument of (spatial and infrastructure) planning we could identify patterns in the cases and we can identify the main elements for creating adaptive qualities (see also Verhees 2013):

- A clear division and acknowledgement of the roles in a project is vital: the private consortium takes initiative, the government selects and (last but certainly not least) the users and special interest groups criticize and enrich the plans and proposals with their feedback. These users and interest groups cannot be ignored in a view based on Complex Adaptive Systems, they are simply part of the system. Because of the various roles and the fact that various actors got and took the responsibility for their role, the adaptive phases in the PPP cases studied could 'overcome' the frame of technical-rational traditional Dutch planning.
- Though every project phase starts with a firm basis for exploitation, room for exploration has been extensive. A good balance between exploitation and exploration is important. Exploration is subsequently directed and stimulated through the use of performance criteria in every phase of the life cycle of the projects (from the design phase to the maintenance and operational phase). Contracts could benefit from this insight and therefore should contain enough process related elements (flexing) instead of fixating (hedging).
- Interaction in and between mutually dependent private and public consortia is important, each of them having their own identity and accountability. Their parent organisations should act at 'arm's length'. Tendering procedures should enhance mutual dependency between public and private actors.
- Large spatial and infrastructural projects should be intentionally 'metaplanned' (planning of the planning) during their entire life cycle.

Through metaplanning especially government can create a context for PPP and planning of large spatial and infrastructural developments, in which the several private, public and civil actors and stakeholders can self-organize and co-evolve. In such metaplanning governance is focused on how the context of the planning problem at hand should be defined (set the conditions), in order to steer the system in the desired direction without interfering in the way the system (of actors and stakeholders) organizes itself. This way governance can tune the room it allows the social-spatial system to have: how many options and solutions to explore do we make possible? Which performance criteria shall we define? What will be the award for fulfilling these criteria? How and with whom do we judge the proposed solutions and plans? How much competition and how many competitors do we want? Which tender procedure do we want: negotiation procedure or competitive dialogue procedure? How do we ensure an effective role division during the project life cycle? How can we give end users and interest groups more influence, and in which phases? The latter might be done by giving users and/or interest groups a role as challengers or as member in a jury?

These are the concrete questions planners should ask themselves in order to exercise real influence through their governance in planning. Of course when addressing these questions in the context of large projects planners can and must use the existing laws and regulations (formal rules) as a menu. However, planners make for a great deal themselves the rules of the game; they are not just being implementers of these formal rules. Figure 9.3 lists important (sub) elements to influence complex adaptive systems and thereby can be seen as a first tool to exercise this function of developing the rules of the game for a certain project.

On basis of the PPP case studies and the previous discussion, we think it is possible to pick fruits from complexity sciences in spatial and infrastructure planning. Core is to embrace a new perspective on governance: indirect and on a more abstract level. In the Maastricht case adaptive qualities arose during plan making stages within a planned context driven by competition, a few selection criteria and a competitive dialogue between public and private consortia. In the Waardse Alliance the context had been 'planned' deliberately by creating a design group consisting of the two public and private partner organisations with the power to adapt to new situations during the plan execution phase on the basis of five selection criteria and an incentive to earn money and goodwill from local stakeholders for both partners. In the Montaigne high school PPP adaptive qualities rose after a crisis, at which public and private partners found out they were mutually dependent in a context driven by the satisfaction of the users (teachers, students) and trust between all stakeholders to survive during a very long operations phase, more than a contract closed many years ago.

Society will profit from leaving one-time, linear planning moulded in a contract at the start of a project with the impossible promise that this frozen document can steer the entire projects' life cycle. It will get in return a (meta)planning that fits the situation and gives private and public actors a frame to organise themselves, to adapt to inevitable changes over time, to absorb these changes and to steer developments in the desired direction. <<











# >> Land and property development in times of crisis

## Choosing the right governance strategies

Erwin van der Krabben  
and Peter Ache

### INTRODUCTION

>> All over Europe real estate markets have been hit hard and are being disrupted since 2007 by severe financial and economic turbulence. Demand for real estate has gone down, house building construction has dropped, vacancy rates in commercial real estate increase and real estate prices are under pressure. The changed conditions on local and regional real estate markets seem to call for proper and perhaps planning responses. Janssen-Jansen *et al.* (2012) argue that in Western Europe the economic crisis, which may still be expected to be cyclical, must in fact be considered as the forerunner of a much more fundamental shift in the context for planning. In the last five or six decades, planning has always been based on growth, both in demographic and in economic terms. For a large part, planning policies consisted of programming new developments, to a larger or lesser extent 'controlled' by urban containment goals. However, cities all over Europe now face demographic changes, such as those relating to the stagnation of population growth, an ageing population and a decline in the available work force, while the potential for economic growth remains to be highly uncertain. In this changed environment with less growth or even without growth and uncertain economic prospects planning has to reinvent itself. The uncertainty about future growth seems to call for a much more flexible planning approach to new developments. Among other things, the flexibility or adaptive efficiency of planning systems is at stake (Halleux *et al.* 2012).

The real estate crisis and the increased uncertainty about future demand for real estate has had a substantial impact on urban development. Many development projects have been stalled, due to a lack of demand and sufficient financing capacity, delaying the fulfilment of cities' ambitions for growth and regeneration. Dutch cities seem to suffer particularly from this real estate crisis, due to the current financial model for urban development. For a long time, Dutch cities have been very efficient in using the value increase of land, caused by a change of zoning, to financing urban development and infrastructure provision (Needham 2007; Buitelaar 2010; Van der Krabben & Jacobs 2013). Without growth, this system no longer works, potentially eradicating the financial foundation for urban development. Since then many initiatives have been launched to revive stalled development projects, to stimulate urban development and transformation.

Those initiatives can roughly be divided in three different types. First, new 'income models' for financing urban development and public infrastructure have been proposed, replacing the traditional Dutch-style of public land development strategies. The intention of those income models is to improve, at project level, the balance between costs and benefits of investments in urban development (Janssen-Jansen *et al.* 2012; and see below). Second, alternative

**1** 'Over zoning' refers to situations in which, locally or regionally, too much land has been allocated for e.g. residential or commercial development in relation to the expected future demand for it. Usually, over zoning is a result of the combination of a sudden drop in demand and a delayed response of the responsible government bodies to reduce plans.

development strategies have been proposed (see section 2 of this chapter). Third, regional and local governance strategies have been proposed to prevent or reduce regional and/or local 'over zoning' of new developments, hoping to fuel demand for the remaining development projects.<sup>1</sup> One of the main issues in these uncertain times, at the metropolitan level, is how to balance the planning and development of new residential and commercial areas on the one hand with the need for stabilizing existing real estate markets and maintaining a good quality of existing urban areas on the other hand. It's felt that the present tradition of network governance, which has replaced in many regions earlier command-and-control governance mechanisms, is not in all situations able to deal properly with the changed conditions. Perhaps surprisingly, as a response to problems with over zoning, the private sector has asked for (returning to) a much more hierarchical planning approach, asking provincial and metropolitan governances to be more decisive in, for instance, reducing plans for new developments in order to reduce competition between those developments (see for instance: Ministerie Infrastructuur & Milieu 2012; and see section 3 of this chapter). The way to proceed is, however, unclear. No doubt, the issue of regulating developments in residential and commercial real estate markets requires a regional / metropolitan approach, since both households and companies – when they look for a new house or new office space – increasingly orientate on that same metropolitan level. Due to what some might call institutional inertia, we will argue here that the 'inward-looking' planning for metropolitan regions, i.e. the regulation of planning and property development within metropolitan regions in the Netherlands, has not always been effective. In that context and in the light of a much more uncertain future, the current call for more effective governance interventions at the metropolitan level can be considered a real challenge.

This chapter addresses the close relation between planning, the institutional order of land and property markets and land and property development. It is argued that, in the context of changing market circumstances and increased uncertainty about future growth and demand, alternative governance strategies must be developed to shape the conditions for desired urban development. Two 'problem areas' will be analyzed more closely: (1) the financial model underlying land and property development and (2) metropolitan strategies for office development. On the one hand we pay attention to some of the proposals for alternative governance and finance strategies – what we called above the new 'income models' – for land and property development; on the other hand, metropolitan governance strategies in dealing with the non-linearity of land and property markets will be discussed. Section 2 will look at the Dutch financial model for urban development and recent suggestions to adjust that model to the changed conditions. Section 3 will then pay attention to a recently adopted strategy to deal with over zoning and oversupply in regional office markets. The case study concerns a national initiative – the implementation, however,

is on the regional or metropolitan level – to regulate the Dutch office market in order to adjust to current market conditions (the ‘Kantorentop’ strategy). In section 4 we will put particularly the Dutch metropolitan planning strategy for office markets in an international perspective by paying attention to recent experiences with the effectiveness of metropolitan retail planning strategies in Germany. Section 5 will then provide some conclusions regarding the prospects for pro-active co-evolutionary planning in times of crisis and uncertainty.

### CRACKS IN THE DUTCH FINANCIAL MODEL FOR URBAN DEVELOPMENT

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>> The financial model for urban development in the Netherlands has long been based on a public land development model. It ‘encompasses a public developer – usually the municipality – who buys all the land to be developed, readjusts the parcels into forms suitable for the desired development often many years prior to the implementation of the plan in a certain location, and sells those serviced parcels either to private developers or end-users. The income from the land development comes from selling the building plots’ (Van der Krabben & Jacobs 2013, 776; and see also Groetelaars 2004; Needham 2007; Louw 2008; Buitelaar 2010). This development strategy guarantees municipalities usually a very substantial part of the value increase of land, caused by a change of the zoning in a legally binding planning document, to be used for financing the costs of public infrastructure investments. Other countries make use of public land development strategies as well, but not in the same way and to the same extent as in the Netherlands. While in the Netherlands public land development must be considered as the main financial model to finance public investments in urban development, public land development (or: land banking; usually restricted to brownfield areas only) in other countries is mainly intended to secure land for future development (Van der Krabben & Jacobs 2013). Value capturing to finance public infrastructure provision is common in other countries as well, sometimes by way of betterment taxation but often based on negotiated contributions by private developers related to issuing a building permit (Alterman 2012).

The Dutch financial model for urban development works well as long as at least four conditions can be met. First, municipalities must have easy access to the land market, to be able to acquire land for future development. Although municipalities in the Netherlands do not have monopoly powers on the land market they nevertheless used to meet almost no competition on the land market from the private sector. The situation changed in the 1990s, but was ‘repaired’ again by introducing a new development model (the *building rights model*): developers agreed to sell their land to the municipality; the municipality (alone or in a public-private partnership with one or two private developers holding a land position) took care of servicing the land, putting in the



**2** See, among others, Priemus & Louw (2003), Verhage (2003) and Needham (2007)) for extensive analyses of what happened on the Dutch land market in the 1990s. However, we do not pay further attention to it in this chapter, because we concentrate here on what happened after the financial and economic crisis.

**3** A report by EIB (2011) shows a huge difference in the balance between costs and benefits of respectively greenfield developments and urban transformation projects.

**4** This situation has been referred to as the 'two hats dilemma' – when municipalities favor financial or economic considerations over spatial planning goals (Needham, 2007).

**5** A recent report by Deloitte Real Estate Advisory shows that all Dutch municipalities together might lose up to € 4.0 billion on public land development (Deloitte Real Estate Advisory, 2013).

infrastructure and re-parcelling it into building plots. The land-holding private developers in turn received a building right, giving them the first right to buy serviced land from the municipality (in an amount that equalled the size of the land that they had sold to the municipality). And municipalities could continue with their public land development strategy.<sup>2</sup> Another reparation concerned an adjustment to the Spatial Planning Act in 2008, now containing a new legal basis for cost recovery of public works, even if the municipality is not holding the land.

Second, the increment value as a result of the adjustments in zoning must be sufficient to cover the costs of urban development (involving at least costs of acquiring the land, servicing the land and putting in the public infrastructure and interest costs). With respect to greenfield development this used to be no problem and municipalities were often able to even make profits. The situation is different for urban transformation projects, when the costs of acquiring land and properties are usually higher and demolition and clean-up costs of contaminated land must be added.<sup>3</sup> It may be expected that in the next decades urban transformation will further increase, due to the maturity phase of Dutch cities (as elsewhere in Europe), while greenfield developments will reduce.

Third, there must be some (regional) control over the amount of land that is zoned for development, within the limits of what may be called 'good planning'. Municipalities benefit from a certain extent of scarcity with respect to land zoned for development, because it guarantees them the effortless sale of their building plots.<sup>4</sup>

Fourth, a public land development model requires relative certainty regarding the income from the future sale of building plots. Large integrated developments – residential development plans sometimes involve the building of more than 20,000 houses at one location – may have planning horizons of more than twenty years. This confidence depends to a large extent on the prospects of real estate markets. As long as demographic growth and a stable economy fuel demand for housing and commercial real estate, land developers can be relatively certain of a continuous demand for building plots

While the continuing shift from greenfield development towards urban transformation has already caused cracks in the public land development model in previous years (Buitelaar, 2010), the ongoing financial and economic crisis and the accompanying substantial drop in the demand for housing has brought many municipalities since 2008 in deep financial trouble. Now municipalities are not able to sell building plots anymore in the pace that they had anticipated, interest costs over their investments in building land development have rapidly increased.<sup>5</sup> Though some still consider the above developments as mainly a cyclical problem and expect a recovery of land and

property markets, there is also a growing awareness of the structural changes in the conditions for urban development (Janssen-Jansen *et al* 2012). Taking the latter standpoint, the question is how Dutch municipalities should make their land and property development strategies ‘future proof’? Public and political debates regarding this issue continue, but it seems that in principle three different ‘solutions’ are being discussed. First, problems with over zoning should be solved on a regional level. Reduced demand and supply on the land market can come closer to equilibrium by reducing supply as well. The result may be that the development prospects for locations in which municipalities and private developers have already invested will improve (see also section 3). Second, municipalities can improve the financial results of their investments in location by reducing public infrastructure costs and lowering the quality of public space. The likely result is lesser quality residential, commercial areas and industrial areas. And third, new development strategies and finance models have been suggested as an alternative to the common public land development model, promoting a much more organic, incremental development of sites, instead of the, for Dutch cities, common public sector-led large scale integrated development of sites (Planbureau voor de Leefomgeving & Urhann 2013; Van der Krabben & Heurkens 2014). This organic development strategy is meant to be more demand-driven and does not require huge, risky investments in land development at the start of the project. The latter strategy – common in many countries, but not in the Netherlands – requires in fact only (global) masterplanning for the area and not the risky public acquisition of land. In situations that a comprehensive approach is still necessary – e.g. in urban transformation areas, with fragmented ownership of land and properties – the Dutch now look at the possibilities of introducing the German instrument of *Bauland Umlegung* (English translation: urban land readjustment), which would probably require an adjustment to present planning laws (Van der Krabben & Needham 2008; Bregman & De Wolff 2011; Geuting 2011).

Whether the suggested strategies will work is highly uncertain. As long as demand for housing and commercial real estate remains low, no development strategy will help.

## METROPOLITAN PLANNING STRATEGIES FOR A SOUND OFFICE MARKET

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>> The Dutch office market struggles with high vacancy rates (around 17% on average; some regions more than 25% (NVM Business 2014), obsolete office locations and high amounts of zoned land available for new office developments. In a situation of less than previously anticipated demand, new developments may bring a tough and undesired competition with existing real estate markets, risking further increases of vacancy rates and negative

impact on existing urban areas. Moreover, over zoning of land may also lead to (undesired) competition between different development locations, leading to a situation in which no locations at all can be developed. From different sides, including the private development industry itself, calls have come for a more restrictive planning approach on the metropolitan level to reduce and further prevent the present abundant planning of new locations and new office developments. To deal with this undesired situation, the national government and the representative associations of all stakeholders, including the association of Dutch municipalities (VNG), the association of provinces (IPO), the national association of institutional real estate investors (IVBN), the national association of private real estate investors, the national association of financial institutions and the national association of private developers (NEPROM), have all signed in 2012 a covenant that proposes a number of joint actions to reduce vacancy rates on the office market (Ministerie Infrastructuur & Milieu 2012). Those actions should be coordinated on a regional / metropolitan level. The proposed actions include, among other things, the implementation of regional planning frameworks for new office development, the reduction of existing plans for office development, the transformation of obsolete office locations into new, sustainable and attractive office locations and the transformation of office space into residential apartments. The most eye-catching proposal concerns the implementation of regional funds for the removal of obsolete, vacant offices. Those regional funds should offer additional funding to the owners of obsolete and vacant offices for demolition or transformation of office space. Both the owners of office space and developers should contribute to those funds: all owners pay a certain amount of money per sqm of office space, while the developers' contribution is linked to the amount of new office space that is added to the existing stock (the latter pay a certain fee for each, newly developed sqm of office space).

What is interesting here is not only that the covenant is supported by more or less all public and private stakeholders (at least, by the associations that represent the various stakeholders), but also that the covenant defines the metropolitan level as the optimal level to implement the actions in the covenant. Although the implementation of the covenant at the regional level is still underway, we can nevertheless reflect on the covenant, from two different perspectives. The first question is whether the proposed actions are the right actions to potentially solve the problem? Second, the covenant raises the question whether the chosen governance approach can be effective.

### Does the covenant contain the right actions?

Under the present market conditions it makes sense to reduce the number of locations that have been allocated for office development, to solve problems with obsolete, vacant offices that probably will never be used again and to reduce the development of new office space. Some of the metropolitan

regions have already started initiatives to reduce plan capacity (e.g. province of Utrecht). Though most experts seem to be convinced that this is a necessary step towards a sound regional office market, it is likely that initiatives to reduce plan capacity will be confronted with financial claims from private developers holding planning approval for the development of office locations. Withdrawal of the planning approvals can be considered as a regulatory taking (depending on some legal considerations) and compensation needs to be paid. Although compensations paid for regulatory takings in the Netherlands have been rather modest until now (Hobma 2010), it is possible that this will increase substantially when plan reductions will start to take place on a much larger scale (probably unprecedentedly in a historical context). So far, however, the proposal to implement regional funds for the removal of vacant offices has received most attention. One might argue that in a healthy and solid office market the instrument might work well – new office developments will create a fund for the (public) costs of transforming obsolete office locations in the future – but under the present state of the office market, this seems to be a perverse incentive for developing new office space: development costs of new offices will increase by introducing the ‘impact fee’, but it may appear to be still profitable to develop new office space, particularly on ‘cheap’ greenfield locations. The latter would make the transformation of existing urban areas even less attractive in financial terms. Regional office markets cannot do without any new developments, but to stimulate new developments at ‘unsustainable’ locations seems to be the wrong incentive.

#### Will the governance approach be effective?

The office market covenant invites the metropolitan regions to take the initiative for introducing new office market policies. Again, this makes sense: a substantial part of the users of office space will see the regional office market as the market scale to look for new office space. All the metropolitan regions in the Netherlands have regional authorities in place that are responsible for regional planning issues. Regional planning, however, is based on the voluntary participation and cooperation of the municipalities involved. Usually this works quite well, but when it comes to ‘difficult’ and unfavorable decisions – for instance, regarding the reduction of plan capacity – the outcome of negotiations between municipalities involved may become much more uncertain. Provinces, which operate above the metropolitan level, do have planning powers to make unfavorable planning decisions. However, the provinces can stop new plans for office development, but lack the instruments to forbid the development of plans that have already been approved. All the associations of private stakeholders have agreed to participate and have signed the covenant. However, what has become clear already in for instance both the Amsterdam and Rotterdam metropolitan regions, is that the individual members of the associations are much more reluctant to participate. For instance, the owners of good-quality office space with 100% occupancy question the fairness of making

them contribute to the costs of other owners that perhaps have made unwise investment decisions in the past. Moreover, without any legal instrument there will always be problems with *free riders* that do not want to contribute. Though it is too early to consider the initiative as failed, to implement this type of 'self organization' in the office sector on a regional level, so far appears to be 'a bridge too far'.

### WHAT CAN DUTCH CITIES LEARN FROM PLANNING AND URBAN DEVELOPMENT PRACTICE IN GERMANY?

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>> Of course, many countries have experiences with metropolitan planning approaches. How does this look like from a German perspective and what can the Dutch possibly learn from that? As a response to the early versions of the ESDP, German *Raumordnung* defined metropolitan regions of a European importance, which were subsequently discussed as new layers of spatial ordering at the national level, though without immediate regulatory effect (Knieling 2009). At one point, the issue was rephrased as 'communities of shared responsibility', a notion integrating ideas of Tönnies on *Gemeinschaft*, (Tönnies 2005 (1887)) with ideas of relational geography, based on concepts of networks, nodes, patches, and so on. However, German *Raumordnung*, or more specifically the political and professional communities behind it, did not accept the idea unanimously and instead of choosing a regulatory approach, the result was a strategic approach – in a way, a soft planning strategy for what might be called a soft spaces approach (Haughton, Allmendinger, Counsell, & Vigar 2010). The region Hanover, which we will take as an example later in this section is both a soft space in its perimeters of the metropolitan region, but also a hard space, in the sense of a new regional planning layer, integrating twenty one municipalities and integrating responsibilities from bottom-up (municipalities) and top-down (state level). With a view to the main topic of this book, over the past decade the metropolitan regions have clearly become the arena for strategic navigation in Germany.

The presented Dutch examples of negotiated development with and inside changing market environments, on the other hand, cannot be found in the German context. This has various reasons, most importantly the development model as such is different: the classic case was '*Angebotsplanung*', supply oriented development based on planning law and servicing building land, but usually without owning the land. The development in ownership with the option to fully grasp planning gains etc. is a rare occasion nowadays, given that most of the German municipalities suffer from difficult budgetary conditions. In a situation of weak or completely absent development dynamics, paired with budgetary constraints, the developer clearly plays the most important role. This requires obviously a different overall strategy. However, what can be found in



the German situation might still be interesting to look into, as similar intentions can be identified behind it, namely the balancing out of demand and supply, and the stimulation of development across a landscape of municipalities, which together compose a region.

As said, the dynamics, which have been identified in the opening paragraphs for the Dutch system, cannot be seen in Germany, at least not in an all-encompassing sense. The German system of cities and regions shows remarkable differences between places when it comes to development dynamics. In decades previous to unification a global South-North gradient has been identified, dividing the west German part into a northern part, which was mainly characterised by difficult economic adjustment processes (with the Ruhr Region as the eponymous negative role model), and a southern part, with cities like Stuttgart, Frankfurt, or Munich with highly dynamic economic structures (Friedrichs, Häussermann, & Siebel 1986). The responses of the planning system, with respect to land-use differed very much, accordingly. The Ruhr Region e.g. took a largely pro-active development stance, almost indifferently inviting investors and providing generous support environments, mainly with the help of EU structural funds (Ache 2002). The southern cities were basically overwhelmed and could resort to more selective strategies. Munich for instance applied during the 1990s a special development strategy that set clear targets for private developers towards the provision of infrastructures, which had to be provided. This was clearly exceptional, and consequently at that time talk was about a *Lex Munich*, as other cities were not able to push through similar strategies (Ache 2003).

With the merging of East with West Germany in 1989/1990 the South-North gradient shifted, including now the East German Länder and cities as another severely ailing part. In West Germany, disadvantaged regions like the Ruhr and the Saarland remained in the equation as problematic regions. The central government accelerated planning processes by in part straightening out existing procedures, in other parts by transferring responsibilities to developers, which had to take over some of the required checks and balances of projects and demonstrate accord with existing plan works and regulations, and also had to demonstrate how e.g. infrastructure provisions were to be made. After the first ten years, the result of the strategy to create 'blooming landscapes', which the constructor of the unification the former chancellor Kohl promised, was seen quite critically (Ache, Hill, Höweler, & Peters 2006).

More than twenty years later after unification, the situation in Germany has changed again – normalizing so to say alongside a pattern between dynamic metropolitan regions, and less dynamic regions. According to recent analysis at the national scale (BBSR 2012), the dynamics concentrate on the metropolitan regions, as one visible pattern, and on the Southern German city regions in

particular. Metropolitan regions like Frankfurt and Munich are the hotspots in current days, with their concentration of sectors like financial services and banking or with the high tech industry driving the regional economy forward. Those two regions are clearly overheated in many ways, resulting from a combination of still positive population development (as a combination of inner German migration plus slight positive natural demographic figures) with economic growth induced general dynamics (BBSR 2012). Shortage of affordable housing and land or real estate for business and industry are typically the negative indicators that prove the aspect of being overheated. An example in that respect is the multi-billion Euro project of Stuttgart 21, the project to put the existing head railway station under ground, which can be seen as driven by both the interest of *property owners* to utilize the not needed tracks in profitable ways and the interest of the city of Stuttgart to create in its centre a new district for housing and offices (Novy & Peter 2012). At the other end of the scale we find the regions with longer standing de-industrialisation, like the Ruhr, or with more recent phenomena of de-industrialisation and de-population, like Leipzig, which suffered severely from the structural adjustment processes after unification. Both the flight of young well-educated people on the one hand and the decades long structural change of the heavy industries (steel, coal) perforate the urban regions (Lütke-Daldrup 2001).

Overall, the setting for metropolitan development strategies and matching sets of aims and objectives, with the ambition to govern the metropolitan space in an all-comprehensive way, faces quite complex and challenging situations. For the further argumentation in this section, we chose one region from Germany, which is somehow in between those larger development schemes: the region of Hannover.

### Hannover metropolitan region

The region of Hanover is a new construct, which formed at the level of the functional urban region of Hanover a new administrative region with formal powers. The Hanover region is situated in the centre of the Northern German State of Lower Saxony and has 1.1 million inhabitants. The Hanover region institution was founded in 2001 with 21 member cities and municipalities. All municipalities remain independent bodies within the region. The Hanover Region takes over administrative and planning responsibly of the communal planning association and the district (in German *Regierungsbezirk*; Region Hannover 2006; 2009)). Apart from that, the Hanover region gains new tasks from the district government and other state departments. Its most important organ is the regional assembly consisting of 84 directly elected members. Thus its responsibilities go far beyond those of all other regional associations in Germany (cf. Prieb 2003: 81). Its power is especially due to the fact that the region is financed by allocation from all members as well as the Lower Saxon financial equalisation policy. Thus it is able to intervene where imbalances put

a higher burden on rural or urban municipalities respectively, e.g. in the field of social welfare planning and youth welfare service planning (cf. Priebs 2003: 91). Without going into all details, the region is responsible for all major policies in the field of sustainable development such as regional planning, transport planning, landscape planning, and nature conservation. In addition it is notable that policies creating rivalries between municipalities, i.e. regional planning and economic promotion, remain in the hands of the region. (cf. Priebs 2003: 89).

The immediate trigger for what is today discussed as a useful model of regional cooperation in the field of retail planning was a conflict between two municipalities in the Region Hanover, actually between the core city of Hanover on the one hand, which in the mid 1990s planned to locate a large-scale specialist store at the border, and a smaller neighbouring municipality on the other hand. As the two of them were not able to negotiate the case, the region was called upon to moderate the process. This moderation was conducted so successfully, that a political response was created throughout the region to coordinate operations in retail planning, specifically to avoid mall developments leading to excessive competition but also over supply – always with respect to large scale (from about 800 sqm) projects (Borchert 2011; Priebs 2012). The region developed, supported by consultants, a framework to assess such projects and locations, which was appreciated very much as it enhanced transparency. Between 1998 and 2000/2001 did the actors, i.e. the municipalities with the region, chambers of commerce, craft, and the regional association of retailers work on a regional retail concept. Central to the concept are precise formulations as to what can be done in specific locations ('standörtliche Konkretisierungen'). In particular within central places, core supply areas are defined, using precise keys and maps. The most powerful steering instrument in the new regional plan are the so called priority areas ('Vorranggebiete') which not only allow for but also invite retail developments and try to connect to existing structures. The core regulations can also be found in the binding regional plan. This way, a real regulation is achieved. In an assessment of the validity of the approach, the region sees as achievements the established consensus as important, the exclusion of contra-productive competition between municipalities, the zoning of the entire planning area with binding red tapping of zones where certain developments are not wanted, the clear framework for the assessment, the political process which is needed to change that, and the increasing application of retail concepts at municipal level (Borchert 2011).

In general, regional retail concepts are an instrument which becomes more important, at least when following recent policy recommendations formulated by ARL, the German Academy for Spatial Research and Planning (Konze & Osterhage 2012). The most frequently used reference points are the cases of Hanover (Lower Saxony) and Stuttgart region (Baden-Württemberg). But also in North Rhine Westphalia a growing number of cases can be found, like in the

Eastern part of the Ruhr Region. Those cases do provide good examples for a more coordinated approach at the level of heavily integrated functional urban regions, though one has to admit that the field of retail planning is far from harmony.

What can be formulated as possible lessons? A cooperative approach between all stakeholders, including private industry seems to pay off. That includes early stage communication and information, and also the formulation of clear frameworks for assessment, based on a regional consensus. Given that the main competitors remain municipalities (the locations are simply on municipal grounds), the region can form a neutral layer and moderate the processes, also on the ground of objective information. In the case of the Hanover region a shared motivation and consensus, to regulate the retail sector, forms the back bone of a regional development concept. This approach confronts the frequent solution sought in voluntary agreements, which are likely to be broken, as soon as a municipality is faced with an investment interest. The formulation of political consensus in a legally binding format, in the German case the formulation of binding objectives in the regional plan or the provision of process options, provides a clear alternative. Those can only be changed in political processes again, including democratic structures and procedures, and include a control element at higher levels, applying coordinative governance at the level of the newly created region, consolidating what has been agreed upon at lower level, and in part enforcing the local level to step in line. This way, the solution in the case of the Hanover region can be seen as an attempt to stay within the logic of the planning system while applying a more strategic and forward looking, co-designed approach. This resonates with findings from research done on city development without growth (Klemme 2009): planning takes the form of negotiations between various actors, but in particular with those who have the resources to develop projects. That forms the start, but further down the line formal regulations are found to secure outcomes for all parties concerned.

#### CAN PRO-ACTIVE CO-EVOLUTIONARY PLANNING DEAL WITH THE EFFECTS OF THE CRISIS IN LAND AND PROPERTY DEVELOPMENT?

>> One issue of this book publication, to which the examples in this chapter refer, is the challenge of non linearity in planning, in terms of frameworks and responses, and the general assumption, that the Delta Region or Europolis of the future will much more be managed in a course of 'strategic navigation'. Can we address the two Dutch examples of dealing with non-linearity in planning in this chapter as good practices of what has been defined in this book as co-evolutionary planning? Not yet, so it seems. The way Dutch municipalities try to deal with their financial problems in land and property development and the

way metropolitan regions try to restructure regional office markets appear to be rather pragmatic strategies, still lacking a more fundamental understanding of the consequences of a non-linear future.

Can the Dutch, in this respect, learn from German planning practice? We should be careful with comparing the effectiveness of metropolitan planning in Germany and the Netherlands, but it seems to us that there are no *magic formulas*. Metropolitan planning usually concerns a form of a collaborative planning, both amongst municipalities and between the public and the private sector. Successful collaborative planning simply depends for a large extent on the willingness to collaborate. Metropolitan planning for office development in the Netherlands seems to lack such willingness at the moment for obvious (financial) reasons; such a barrier seems not to exist in the Hannover case in Germany. What we would argue, however, is that a distinction must be made to planning in times of crisis (the Dutch examples) and planning in more prosperous times (the German example). Perhaps we can learn that, in times of crisis, soft planning approaches do not work properly. Hierarchical, command-and-control planning may be necessary in times when difficult decisions must be taken. In the Dutch planning system, with the political decision to leave planning to regional and local authorities, the provinces are at the top of that planning hierarchy and, particularly since the introduction of a new planning law in 2008, in principle have 'all the planning powers in place' to act like it. However, two 'situations' seem to prevent them from applying that role properly. First, provinces have the planning powers, for instance, to prevent oversupply of land for development and to prioritize new developments, but can only intervene in the situation that a new land use plan is proposed. The current situation of over zoning is mainly caused by plans that have been approved a long time ago. Provinces lack legal powers to act against planning decisions that have been taken in the past or, if they would do this, must fear to compensate those that are affected by that change of plans. And second, it seems that many of the provincial administrations simply still haven't made up their minds yet how to implement their new roles in the planning system.

So, our conclusion is rather pessimistic. We should not forget that urban planning does not 'produce' the built environment itself. It can only contribute to creating the conditions for the private sector to produce that built environment, preferably in a way that fits with public planning goals (which still is an important task). Whatever type of planning strategy is applied, planning can usually only 'follow' the market and cannot change market conditions. Co-evolutionary planning may provide more flexibility in the planning system (compared to 'traditional' planning), to adjust to changing market conditions. On the other hand, this flexibility may create uncertainty for land and real estate markets as well, reducing the willingness of the private sector to invest. With an uncertain and pessimistic planning horizon, it is questionable whether any planning approach can do the trick. <<







# >> Complex patterns of self-organized neighbourhoods

Jenni Partanen and  
Anssi Joutsiniemi

## INTRODUCTION

>> A large share of urban planning practice in Europe and in western societies more generally is still concentrated on attempts to control urban development in a top-down manner. This view of the city clashes with the autonomously generating urban realm with myriads of interdependent actors and mechanisms on many scales, which are right out of control. The problem is addressed with participatory methods, which, on the one hand, have run into problems of framing and coordination of contradictory desires and, on the other, a lack of a shared vision of viable development positions. Theories of complex systems have recently provided an equivalent and partially competing frame for understanding the city in the light of its intrinsic unpredictability. The emphasis in this is the dynamic, self-organizing, non-equilibrium, and trans-scalar nature of cities. It has succeeded in articulating in a credible manner the systemic errors and expectations associated with control, hierarchy and assumed static equilibrium in today's planning.

Within the western planning discourse self-organization and spontaneous development are insufficiently understood, in spite of strong evidence of a dominant way in which many complex systems – including cities – organize themselves. (Batty 2005, Portugali 1999, Krugman 1996) Planning seems to fail repeatedly in its efforts to control self-organization and this manifests itself in many ways: as the unpredictable re-location of industries and retail; shifts in economic performance; urban sprawl; surprising traffic behaviour or phenomena such as edge cities and growth on the urban fringe (see e.g. Sieverts 1993, Garreau 1991, Bettencourt et al 2007).

The dynamics described here can be found throughout history from cultural evolution to the progression of modes of production in societies, shifts from agrarian to industrial and more recently to information society are examples of such non-linear, evolutionary progress (Castells 2000). The feature is typical of human (and other open) systems – and crises are inevitable. However, today's planning commonly builds on ambitious end-state rationalism and a vague premise of system equilibrium, assuming that it is to some extent possible to reach a permanent steady state. According to complex theories, however, this is impossible. Multiple dynamic equilibria of numerous coexisting and networked social, economic, technical etc. systems dramatically increase the unpredictability of the urban system as a whole in the long run. However, forking development in cities is not random either, but to a great extent related to a phenomenon that we call self-organization. Even though we operate within a strictly circumscribed planning world this is not mere rhetoric.

Despite this, many intrinsically neutral aspects of self-organization are considered – especially in common planning thinking – negative. The focus then is on the malfunctions e.g. traffic jams, sprawling urban structure etc. with very little concern for the fact that some of these unavoidable generic processes

**FIGURE 11.1**  
Aerial of Nekala.



and systemic externalities may also be beneficial to the city. For example, regional scale clustering of high-tech industry and more generally the entire agglomeration tendency is a well-known example of urban self-organization with a positive impact. The performance of firms is better when located in proximity to similar actors, and planning should not (and usually does not) prevent it. The clustering tendency has been widely studied on a regional scale (O'Sullivan 2009, Marshall 1890, Porter 1998, Fujita 2007) but far less in the equally relevant local context.

The aim of the chapter is to analyse traces of the complexity phenomenon in local level clustering. The study area is the industrial district of Nekala in the Finnish city of Tampere, which over a period of 40 years has gone through multiple sequential planning phases with multiple planning goals. Therefore, even though the change has come about within the legal planning frame, the overall incremental development is best described as spontaneous.

The challenge of organizing the complexity is not a novel idea and academic research on planning self-organizing complex settlements is ongoing in multiple arenas. However, research on actual spatial self-organization mechanisms in cities is still rare, hence also our understanding of the diversity and nature of these processes. To build planning tools to support positive self-organization for promoting economic viability and avoiding negative development, we first need to know more about the characteristics and interlinkages of physical self-organization mechanisms currently existing in cities. The loosely controlled nature of special, generative areas with a high capacity for self-organization and a role as facilitators renders important the documentation of the dynamics of self-organizing enclaves and a thorough

understanding of their impact on the emergence of neighbourhoods. These enclaves are often old industrial areas, or other decaying areas in transition. Following the natural scientific trail of complexity studies, a quantitative approach was chosen to explore statistical regularities of self-organization in our study area using isovist analyses and scaling of cluster formations.

Nekala area forms a clearly distinguishable enclave with a seemingly large capacity for generative renewal. Former agrarian production and heavy industrial uses in Nekala have gradually been replaced by an increasing variety of activities: Nekala has adapted to the dominant modes of society from simple industrial use to a complex mixture of industrial use, services, information technology and, more recently, cultural uses (Partanen 2015). In contrast to many similar industrial districts primarily planned for heavy industry, the transitions in society never caused a vicious spiral of decay as changing manufacturing jobs decreased or moved from such central areas. Instead, the tendency in Nekala has been towards a constant chain of renewals, filling up the deserted factories and other properties like a car body factory, a slaughterhouse, or a cardboard factory, with small actors representing the emerging mode of production, such as recently a circus school, advertising agency, architect office and several ICT-services and spaces for music production. However, not all the traditional industries have left – several car repair shops, machinery wholesales and building construction companies (along with a concrete batching plant) are still operational in Nekala. These different uses seem to form varying clusters which most probably also change over time (both in regards of the actor and the location) (Partanen 2015). Therefore it can be assumed that the diversity of uses and stakeholders in Nekala is most probably reflected in their arrangement of some key interdependencies between actors across industries. Nekala industrial area is one of the most important workplace areas in Tampere region – the second largest urban agglomeration in Finland. The development of the area has followed several planning goals and created a multi-layered industrial ecosystem rather than a well-targeted outcome, so it seems likely that some form of self-organization has occurred in Nekala along with its development process. In order to adjust future plans to support such autonomous processes, it is necessary to study the spatial arrangements and potential manifestations of bottom-up processes more closely.

The site plans in Nekala are relatively simple, with only minor variation; hence the expectations for internal complexity are not obvious. The plans have used two generic principles to allocate activities: the permitted usage(s) and predefined maximal floor area ratios (FAR). It is also noteworthy that there is no explicit mechanism in the plan that would directly create any distinguishable sub-cluster formations.

Our strategy was to explore whether greater density correlates with clusters, number of actors and FAR on sites. It was also probable that the plot level restrictions for construction and use played a role in clustering, and the number

of permitted uses in the plan in the clusters was compared to ascertain whether the clusters specifically benefitted from less restricted sites. Finally, the effect of age was explored, implying lower quality of facilities and level of rent, on the uses: certain uses might cluster into older, more affordable buildings. The age distribution of all the buildings was compared to the ages of buildings clustering separately for retail, services, warehouses and industry to estimate the effect of age on agglomeration.

The empirical studies presented in this chapter are based digital maps and plot structure, workplace data for the period 1971–2007 and the building year records (from 1900 to 1999) all collected and archived by the City of Tampere. The locational analyses were carried out using common desktop GIS software (MapInfo).

## THEORETICAL FRAMEWORK

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By self-organization we mean the ability of complex systems to form organized structures without overall control, yet receiving feedback from some systemic level. This is often the case with regulation in cities based on a plethora of rules at multiple levels without a full understanding of their collective outcome. Urban self-organization builds upon the relationships and interactions between local agents (such as firms, individuals), producing a variety of actual dynamic patterns (clusters, networks). Therefore the mechanisms are more evolutionary than planned acts of coordination. Interestingly, as also in natural processes, many of these urban interactions follow certain mathematically measurable principles, such as scaling laws, implying a dynamic interdependency between entities. (Eigen 1977, Kaye 1994, Kello 2010, Bettencourt et al. 2007). These processes of self-organization are neither centrally governed nor random: the actors organize themselves in relation to each other without external guidance (from above).

Self-organization builds upon pioneering studies in mathematics and control theory in the early 20<sup>th</sup> century. The thinking expanded after the 1960s into biology and physics, and is firmly rooted in the natural sciences (Keller 2009, Eigen 1977, Varela et al. 1974, Prigogine 1978). Formally, self-organization is considered to be an actual mechanism through which patterns emerge from relations among agents and adaptation to a complex system. The emerging patterns may be dynamic, as in biological systems, or static, as, for example, in snowflakes, and occur on the same or higher scalar level (Kaye 1994). In relation to planning, a concept of self-organization needs an additional remark. Planning, like the majority of human activities aiming to change the course of future development is intentional and the concept of self-organization may seem confusing. We claim that, despite this profound intentionality, the overall



development is more or less unpredictable. The intentions of individual actors are micro-scale manoeuvres with only a minor effect on overall development. Even in the case of so-called comprehensive planning ideology the overall development has so many external players that the development is better understood as an emergent, self-organizing whole than as intentionally planned.

In the literature on complex systems several measurable features are associated with self-organization, among them so-called deterministic chaos (implying the temporal irreversibility of processes), and also various cases related to the scaling laws of a system. Scaling laws imply that certain self-organizing patterns emerge repeatedly across the scales. They typically occur in systems near critical points or phase transitions, implying a change in the system's state and reflecting the self-organizing adaptation of agents. (Kello et al. 2010: 223). Such scale-dependent characteristics are found, for example, in frequency size statistics and frequency-mass distribution applied e.g. in studies on earthquakes and meteors; allometry in biological systems; fractal drainage networks, occurring in streams and biological branch structures; and time series in river flows, stock markets or the "random walk", to name a few (Kaye 1994, Kello et al. 2010). Many of these can be mathematically derived to each other (Chen 2012). Therefore it can safely be assumed the scaling laws are rather universal principles in nature and relevant descriptors regardless of the type of system.

The universality of scaling laws was accepted fairly recently, and it has been much debated whether they are purely coincidental. However, the empirical evidence on scaling is extending across disciplines. It is becoming conceivable that these laws could form a fundamental principle of how all complex, self-organizing systems reach dynamic order via interaction and adaptation, and help integrate distinct scientific disciplines. (Kello et al. 2010: 223, Turcotte et al. 2002). The key characteristic of scaling laws is that they are scale invariant, meaning that an observed property is adaptive on all scales (Kello et al. 2010: 224) and, unlike normal distribution, they succeed in dynamically reflecting regularities and dependencies within the system spatially and temporally transcending scales. These laws reflect the dynamic self-organization of actors in the complex system, causing evolutionary mechanisms to arise (Kello et al. 2010: 223).

From today's planning perspective it is surprising that many processes also found in cities follow rules of this kind and introduce an uncanny idea that certain dynamic self-governing features might also push the development further from the planner's control. In the urban planning perspective perhaps the most challenging feature is trans-scalar dynamics – emergent urban patterns cannot necessarily be predicted even though the agents' interactions are known in detail. In the planning discipline this is often circumvented with a strict built-in hierarchy of plan types (regional plan, general plan, master

plan, detail plan). We suggest that some aspects of these patterns can to a certain extent be measured using mathematically discrete methods. Rank size distribution, applied later in this study, is one of these scale-dependent characteristics suggesting a tendency of entities to organize according to their size, typically in an exponential dependency. The rank size rule implies a specific mechanism of self-organization: the entities organize in relation to each other rather than an assumed end state equilibrium – a phenomenon that is difficult to control with a traditional plan due to the vast number and diversity of actors and the inbuilt (unknown) logics of the planning game.

### Complexity in planning

European planning systems rely by and large on modernistic ideas of a city as a static entity which, under proper control and regulation, is kept in a state of equilibrium – or at least out of imbalance and away from system states considered flawed. Only recently have theories of complex systems proposed that this imbalance is actually an intrinsic, unavoidable feature of a city. Complexity implies that evolutionary dynamics, manifesting as continuous critical oscillation between stability and instability – with those inbuilt ‘flaws’ – is actually essential for cities to remain resilient and survive. (Batty 2007, Portugali 1999, Allen 2004) Complex urban formations renew themselves through these crises. Furthermore, the observed seemingly steady state of everyday life is in fact not that static, but rather results from myriads of constant changes on micro-level only hidden by the moderate predictability of the immediate future.

In our study area certain traces of a self-organizing tendency and agglomeration of activities seem evident. From the perspective of economic viability we claim that this probably important mechanism should be acknowledged (and encouraged) by planning and therefore better understood. To implement the theoretical framework of complexity and evolution in planning, our aim is to study local clustering and especially the potential impact of factors affecting it (in addition to proximity), namely, spatial features, co-existence of (multi-) clusters, building age and plan, and to explore whether potential new patterns emerge from interaction among these factors.

## TRACING SELF-ORGANIZED CLUSTERS

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>> The self-organization of activities is best understood as a trans-scalar phenomenon – as interlinked and networked activities reaching from the neighbourhood corner shop to the global system of cities. Despite the essential fact in any modelling task that many important triggers must be left out, any observed system must be defined in an appropriate manner according to the scale of the phenomenon studied. Thus in the study of self-organization the borders between the chosen systems ought to be porous throughout the

scales. Large-scale urban clustering has been widely studied (Marshall 1890, Porter 1998, Fujita 2007), but a smaller observation scale can be even more appropriate, for example, if the primary focus happens to be on the evolutionary, e.g. the informal exchange of information promoting creativity, which is one of the puzzling tasks in our study area as well. Furthermore, today the way this clustering of economic actors enhances knowledge creation, the innovation process and interactive learning is becoming more important than the cost efficiency essential on a larger scale (Malmberg and Maskell 2002).

In the ideal planning setting, the fundamental logic of actors to constantly seek for more preferable locations is often overlooked. Instead of focusing on the appearance and externally targeted description of district, it is important to distinguish the factors that create the inner conditions of mutual exchange between stakeholders. Such a factor could be agent configuration and the proximity to similar actors in it. For this the wisdom must be sought elsewhere than in planning itself.

Agglomeration economics sheds light on the principles underlying the clustering of activities. The clustering may occur, first, within one industry to share intermediate inputs, labor pool, spillovers (called localization economies). Secondly, various actors may be attracted to a wider city region to benefit from sharing important facilities (e.g. banks), labor pooling and better labor matching in a self-enforcing process (known as urbanization economies), implying that firms attract other firms across industries (O'Sullivan 2009) and resulting in large diverse cities. Both approaches contemplate the regional, macro-scale dynamics of clustering – actors observe the environment on a regional scale. Another aspect of agglomeration is competition attracting similar firms to locate within geographical proximity of one another to benefit from the same customers. In addition, co-operation becomes significant – arising from mechanisms related to sharing, learning or matching (Duranton and Puga 2004) analogical to the evolutionary concepts of imitation, mutation and adaptation discussed above. The structure of relations in these mechanisms is not always dependent on geographical proximity alone.

## THE CONCEPT OF PROXIMITY IN AN EVOLUTIONARY CONTEXT

>> In evolutionary views concentrating on co-operation facilitating innovations, Boschma and Frenken (2010) define the concept of proximity in a dynamic actor network to be more generally related to knowledge dissemination between similar actors. Thus proximity refers to the linkages between actors not necessarily geographically close to each other. Consequently, five types of proximity become relevant in these networks: institutional, organizational, geographical, social and cognitive proximity, implying similarities in the institutional (laws, regulations) (company's) organizational structure; spatial

vicinity, social connections, and similarity of the knowledge base (Balland 2009, Boschma and Frenken 2010). Most probably these types are present in all networks to an extent; however at least one of them is required for innovation facilitation (Balland 2009).

It is likely that in Nekala many of these are present (due to the national and international companies in the area alone). We concentrate in this study on geographical proximity: geographical proximity and the (related) diversity (Boschma and Frenken 2011) is considered to be the most important for the actors in the growth phase (Henderson et al 1995, Neffke et al 2011, Boschma and Frenken 2011); as the actors grow, they are likely to flow to more localized, specialized locations (Duranton and Puga 2001, Holl 2004). There is also certain – yet not fully documented – proof of similar dynamics in the case area. In mature (perhaps even lock-in) situations – as is the case with many typical decaying industrial areas – geographical proximity plays a less important role, and other network linkages become more relevant (Boschma and Frenken 2011). As regards Nekala, an increasingly diverse breeding ground, we assume that it has an ability to constantly renew itself, allow an outflow of mature firms, attract new actors, and avoid lock-ins. Thus it is justified to propose that geographical proximity (untypically) has remained important in Nekala, along with geographical aspects of (temporal) organizational and social structures benefitting from face to face interaction (Balland 2009), especially as regards the creative industries continuously increasing in Nekala (O’Sullivan 2009).

## MICRO-SCALE FACTORS

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➤➤ In physical systems factors of the immediate surroundings of any entity determine the behaviour of that entity to some degree – the actors seek a combination of features and externalities of the site best suited to their preferences. These micro environmental factors are also found in the social environment – the character of the area emerges from the diversity of activities and user groups and causes adaptation or resistance to change in the neighbourhood (Andrews 1971).

It is assumed that physical characteristics – quality and the maintenance level of the environment; topography, site shape and orientation, and spatial characteristics – exert their influence in close proximity to the site. In its most simple form this can be seen in everyday activity, where the spatial characteristics related to the visibility of activities in a space affect the location choice: agents have some preference for activity they can easily see over the unknown, hidden from immediate perception. The so-called isovist approach, which is based on the calculation of the visibility field from the point of observation, provides a discrete method for measuring many aspects of visibility in space, for example the (mean) lengths of the longest views, the diameter

or the area of the field of vision, or various other relations between them. Comparing these measurements in various built-up areas reveals the features typical of a certain area, block or building (Turner et al. 2001, Batty and Rana 2004).

Operating environment defined by hard economic factors forms another set of important information sources for an actor: The property rents and maintenance costs of the property, both related to the age (or condition) of the building, affect how desirable the site is for the actor. Furthermore, their economic performance depends on competition and potential co-operation (based on personal encounters in the space) both with similar and non-similar actors which may cause neighbourhood scale agglomeration of similar actors, or the attractiveness of a more diverse environment may produce simultaneous multi-clustering of diverse actors across industries (Andrew 1971, O'Sullivan 2009, Fujita 2007). In addition to physical characteristics and economic factors, the micro-scale institutional environment – laws, regulations, or planning rules of the site – is also critical for actors' choices of location. In terms of fit between controls and actual processes (and self-organization) much depends on the flexibility of these regulations (Andrews 1971: 54). Under ordinary circumstances it is assumed that the activity patterns follow the main lines of the regulation, but it is not unusual for the plan to be updated for specific project purposes. In incremental planning ideology these flexible but contradictory adjustments to prevailing planning schemes requiring additional degrees of freedom to host more complicated process are common, but also steer away from the rationale of comprehensive long-term planning ideal.

Malmberg and Maskell (2002) note that observed cluster formations rarely conform to standard industrial classification. Expanding the classification beyond existing groups of firms might also reveal significant yet unrecognized agglomerations. For us the re-classification of the activities according to potential spatial interaction via customer behaviour, competition, co-operation and interaction with the immediate environment in Nekala helped to identify novel types of agglomeration across firm types. New, more specific clustered activities were retail, services, industry and warehouses. Therefore, hypothetically, local-scale factors – spatial characteristics, co-existing networks, site plans and the age of the buildings – affect the locations of these activities and produce unplanned, self-organizing patterns. The plans themselves did not provide more than a vague industrial activity definition across the entire area.

In a detailed study the activities in Nekala were explored using time series and the number of similar neighbouring activities was calculated. The clusters with specific activities were compared to sites outside the clusters (e.g. sites with retail and sites with no retail). Based on this straightforward analysis, clustering seemed to be typical for the area: 96% of actors located as a part of the cluster of similar actors (Figure 11.2). Whether this was a result of self-organization,

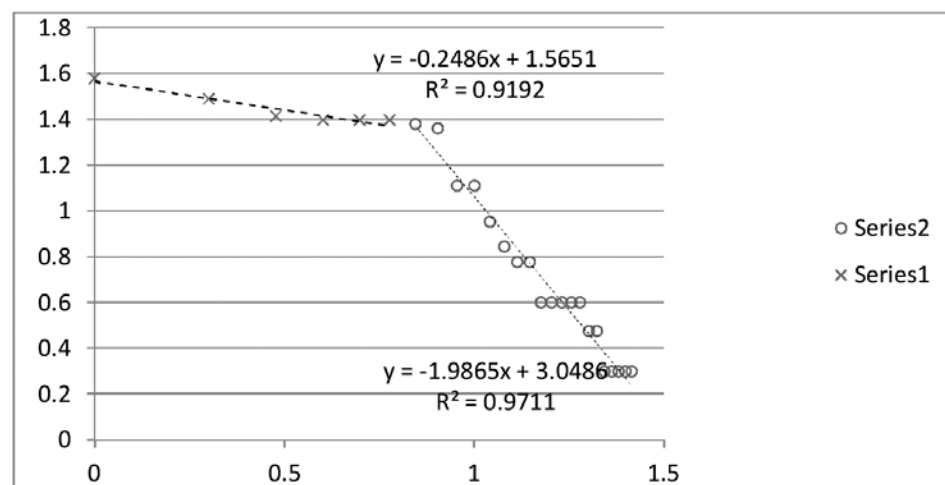


**FIGURE 11.2**  
Clusters of industry, 1989.



the dynamics needed to be compared to a demonstrably generative mechanism, in this case rank size distribution, revealing that self-organization was indeed evident (Figure 11.3). We assume that the reasons for this behaviour were attraction based on co-operation and competition, even though the role of other local factors – the co-existence of clusters, spatial characteristics, building age or site plan – cannot be ignored. In the next phase these findings were analysed further.

**FIGURE 11.3**  
Clustered neighbourhoods  
ranked on a double logarithmic  
scale follow the rank size rule.



## CO-EXISTING ACTIVITY NETWORKS

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>> All clusters occurred simultaneously and none of these dominated the others, and the activities changed over time resulting in constant change and re-formation of the clusters. Therefore it was natural to assume that there was a location-specific mechanism (e.g. attraction or repulsion of clusters, not only similar actors) behind it. This could have been the case, for example, if coexisting/overlapping clusters were remarkably common in the area. Furthermore, perceptible patterns may occur as a result of this potential dynamics. With these aims in mind, the number of neighbours of each activity in clusters was compared statistically to the total number of neighbours of each activity on the adjacent sites. Hypothetically, the resulting variation in mean and standard deviation would indicate the correlation between co-existing activities in these adjacent neighbourhoods and clustering of activities, that is, whether clusters are more likely to emerge on sites with many different actors than on those sites with only a few.

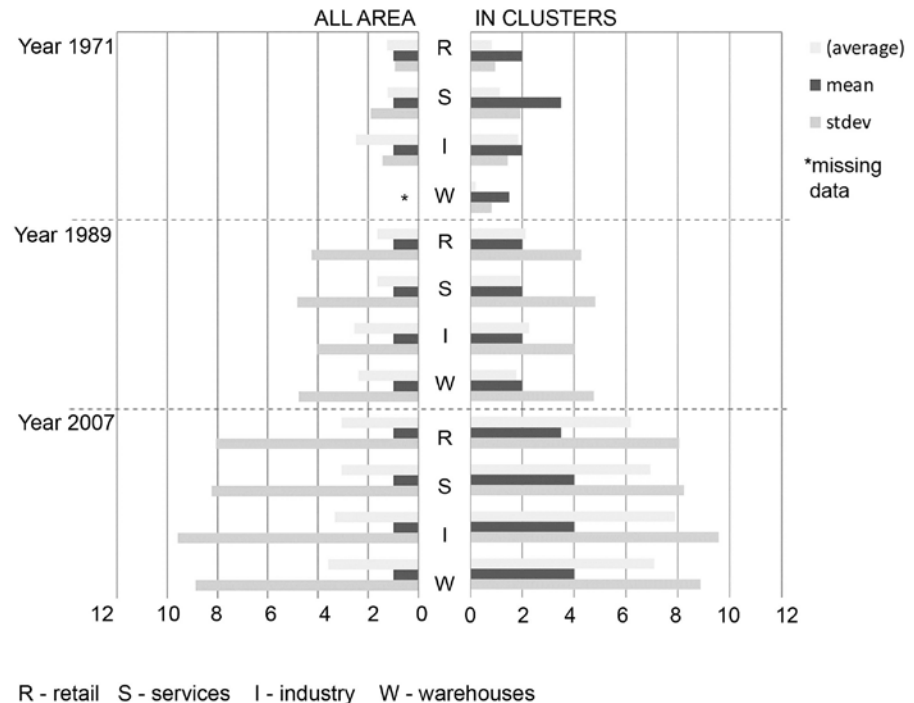
The study revealed that in Nekala many previously unobserved self-organizing processes came to the surface. Certain correlations between the factors, such as agglomeration, overlapping clusters, visibility or plans, were obvious but – typically for complex systems – the causal linkages between the mechanisms and factors would be overly complicated and probably impossible to track. However, examining the mechanisms in detail provides an instructive overview of the convoluted nature of self-organization in Nekala study area.

As regards the coexistence of clusters, it seems that in clusters the diversity of uses is remarkably wider than in general in time series – multi-clusters are fairly common in Nekala. Moreover, in clusters the diversity of activities has recently been growing contrary to the general trend in the area: the number of uses on the site and those adjacent to it has stayed low and exceptionally constant. Since activities in clusters have increased, it seems that there is an attraction mechanism – or gravitation – that causes new actors to locate in these agglomerations, increasing the complexity of the cluster. This mechanism is also dynamic in nature: clusters are not spatially or functionally stable but change, move and transform over time.

Finally, additional differences between clusters and overall area were compared statistically. A summary of these is included in Figure 11.4. In the Nekala study area certain statistical features (means and standard deviations) were fairly similar and predictable over time. The clusters, however, again behaved somewhat differently from the study area as a whole. The relations between the same statistics in clusters seemed to have a specific profile, which changed over time. It is also worth noting that the typical clustering varied over time. Since this is despite the fact that planning principles and methods have not explicitly changed, it is perhaps not unreasonable to assume that the cause is changing economic and social preferences (Figure 11.4).

**FIGURE 11.4**

Statistical “profiles” of number of neighbours in clusters and all the area.

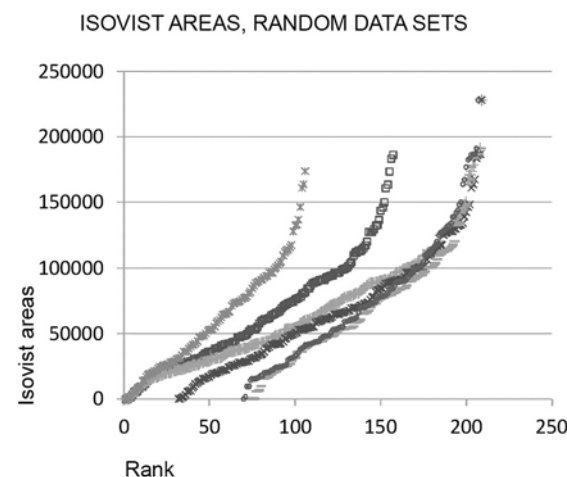


## CHARACTERISTICS OF OPEN SPACE

>> In order to gain further information on spatial characteristics in cluster formations, the whole area was explored by comparing the visibility areas using isovist analysis. The observation points of isovists were chosen randomly 50 meters apart from each other across the area. The isovists within clusters were then compared to isovists of the area as a whole, outside the clusters and a randomly picked set of areas. The aim was to identify potential profiles within the clusters, suggesting that the characteristics of urban space in this case correlate with the agglomerating phenomenon.

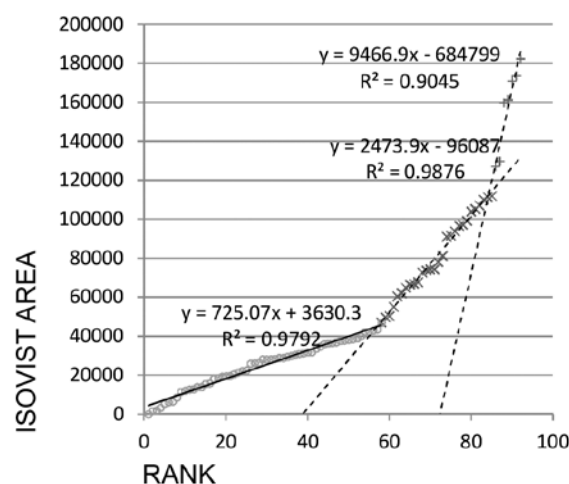
**FIGURE 11.5**

Distribution of ranked isovists, random data.



This detailed study of spatial characteristics also revealed some surprising patterns. First of all, as the visibility areas were ranked from smallest to largest separately for all data, random, and data outside clusters, the values for each set seemed to be related to each other. A systematic profile was discerned which in visual examination resembled the logistic curve commonly found in various natural phenomena. (Figure 11.5) However, the clusters again stood out from the rest of the area. When ranked in groups of small, mid-sized and large, the visibility areas formed distinct, linear distributions with distinctive slopes. (Figure 11.6) In the literature such transitions are typically found in systems with phase transitions, therefore implying strongly self-organizing system. Again, the locations of isovist areas varied in each case, and the biggest or smallest areas, for example, were not always the same in the comparisons. Therefore it is possible that visibility has some significance in the location decisions of actors; at least the findings suggest that the self-organization mechanism is observed only in clusters. Although it may at first glance seem irrelevant, to us it suggests that it is possible that the main organization principle of our study area is based on spatial characteristics and configuration rather than other normative dimensions of the planning apparatus.

**FIGURE 11.6**  
Distribution of ranked isovists  
in clusters, with “phase  
transitions” in the system.



The relation between the plan and clusters is fairly obvious: in the clusters the plan generally tolerated more uses (3-4) than the rest of the area – and never fewer uses than two. The result is quite evident and intuitive –the tolerance does not produce clustering, but the clusters emerge following their own self-organizing logic, in a framework of a preferably tolerant plan. Also, it is important to stress that the age of the building or density on the site did not correlate with clustering.

In this study it is not possible to dig much deeper, but it is possible – even probable – that the above factors and mechanisms are interconnected. For example, the overlapping clusters may result from actors seeking certain

visibility; a tolerant plan is conducive to cluster formation, but obviously plays no role in spatial hierarchy, or in the actual agglomeration process. After all, the (unplanned) interdependencies of mechanisms are fairly complicated and the plan has only (accidentally) provided an enabling frame for these countless forms of self-organization. It seems that in Nekala it has been enough to let the stakeholders operate under their own premises in the absence of major malfunctions. This alone is a valuable lesson for the planning discipline. Our further remark on efficient planning practice is that planning is not always (if ever today) a simple, unidirectional process: especially larger projects or somewhat established (but informally emerging) uses may require updating the plan, and form a certain feedback from actors to the planning system. This unspoken policy may also be seen as a relevant way in which the planning institutions with their limited resources respond to the demands of urban complexity. However, due to the vast amount of work required to constantly improve planning procedure, the solution is not the most sustainable. In Nekala, it is likely that the plan has been updated in a more tolerant direction simply by following individual actors' preferences. In an institutional sense the so-called communicative turn never took place, but was by-passed with actor-level degrees of freedom that ensured the mutual benefit.

## DISCUSSION

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>> Theories of complex systems provide perhaps the most explanatory paradigm for cities today. The new understanding of complex urban systems emphasizes the trans-scalar, dynamic, non-equilibrium nature, the constant qualitative renewal and evolutionary characteristics of cities. Self-organization is an essential mechanism of how order emerges in complex cities. However, in planning discourse self-organization is currently often used only in a metaphorical way. Its origins in natural science also enable a more discrete measurement and precise study of self-organization in cities in the interests of more considerate planning theory and practice.

Complexity thinking and evolutionary economics provide a perspective for understanding the similarities between the dynamics in city economics and in nature. In complex systems, evolutionary dynamics is essential for systems to remain resilient and survive. Constant shifts between more and less predictable states – too often considered crises – paradoxically sustain continuous urban economic and social processes in a larger perspective. (Batty 2007, Portugali 1999, Allen 2004) This emphasizes the role of planning as an enabling and steering rather than a controlling and regulating device. Supporting the self-organization of individual actors may promote economic performance and benefit the whole “ecosystem” in cities. It is commonly accepted that innovation and creativity play a crucial role in this continuous renewal in cities. They cannot be produced purely by the means of planning or policies, but they can be



stimulated by supporting the existing actors' self-organized networks. Planning of today often clashes with this understanding of self-generating urban phenomenon: self-organization is either not recognized, or considered inferior or simply a flaw in the controlled, stable and predictable urban system. To us it seems important to understand that, despite the prevailing view of self-organization resulting from negative phenomena like sprawl, dispersed city structure and traffic problems, some forms of self-organization – like the clustering contemplated in this chapter – can also be beneficial to the viability of the city, and should not be prevented. Furthermore, as the findings in this chapter reveal, these mechanisms can be more complex, hidden and interlinked than planning probably assumes. Therefore their reciprocal influence and beyond is likely to be very complicated and difficult to strictly control.

## CONCLUSIONS

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>> In this chapter Nekala area, the target of this study, was shown to have a very rich system of internal dynamics below its planned surface. It is probable that this particular combination of self-organizing mechanism typical of Nekala is what makes the area unique and viable. We assume that many similar, mature “urban ecosystems” – industrial areas, various centres, and cultural hubs – may have developed their own fingerprints over time. It also seems likely that generalized forms of strict regulation would most probably have failed in creating similar dynamics. The results of this study also support this call for tolerance, where the disadvantages of individual actions are controlled in neighbourhood level interaction rather than in the planning principles of the larger district. In Nekala the tolerance of the plan was found to correlate with self-organizing structures, enabling, but hardly producing them.

In this text we have proposed some additional measures that can be used for estimating the performance of a city or a neighbourhood. These include the evaluation of the fractal dimension of the neighbourhood. In practice, a proposed plan can be evaluated against such revealed self-organizing mechanisms or the area's typical profile. In the case of Nekala, typical isovist profiles for clusters could provide such a generative mechanism, and the comparison could reveal whether the implementation of the new plan changes the dynamic spatial profile of the place, and perhaps disrupts the operation of the existing system.

The important message of this study hints towards planning in incremental cycles of small steps: sequential evaluation and re-implementation of improved operations. It also provides an additional option for developing planning practice in the form of discrete methods for evaluating how the system will respond prior to implementation and benefiting the operational procedures actually taken. As suggested, many self-organizing processes cities resemble similar natural processes. These mechanisms refer to the systems' autonomous capacity to seek viable spatial configurations – the maximally effective or

beneficial use of space. The opportunity to simulate local self-organizing processes suggests that the role of planning is not only in active interventions aiming at the desired change. Planning also provides information on the predictable and unpredictable processes upon which the agents and active micro level actors may adapt. These development trends may otherwise have gone unnoticed. For a planner this improved understanding of dynamics offers a novel opportunity to focus only on issues that are likely to be in conflict and avoid the issues that will evolve to specific direction anyhow.

Therefore this view emphasizes the requirements for small manoeuvres aiming at preventing less desirable events and based on scientific knowledge, flexibility, and constant evaluation of system as a fundamental part of this recursive planning procedure, concentrating on observation and steering instead of controlling and regulation. To gain adequate knowledge of the urban system, procedures similar to that described in this study might become necessary, aiming at a more thorough understanding of the identity and unique characteristics of the place. The emphasis should be on calling for flexibility, adaptability and recursive nature in future planning. After all, planning is in vain in processes that emerge and complete themselves without external intervention. <<









# >> Coalition Planning

**Directive, collective and connective ways of working on the interface of established institutions and individual aspirations**

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Martine de Jong,  
University of Groningen  
and Twynstra Gudde

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## INTRODUCTION: WORKING IN COALITIONS

>> “Sharing is the new having”, “small is the new big”, “acting is the new thinking”, “temporary is the new permanent”, “following is the new managing” and “citizens are the new urban developers”. All these statements are related to an economy, society and democracy with more and more individuals organizing themselves in networks to share what they have and need. And in which traditional organizations involved in urban planning are less capable of reaching their ambitions independent from their social and institutional environments. Traditional organizations relate to social problems from a specific discipline and sector, therefore address the problems only partially and often independently from those who may be concerned. A challenging way to overcome this difficulty is to build coalitions: coalitions of various actors being able to adapt to changing situations. The challenge of Coalition Planning is to have established institutions and individual aspirations reinforce each other in dynamic coalitions. This can be seen as a necessary 21<sup>st</sup> century tool for urban planners in their task of supporting cities to be sustainable and livable places in a dynamic world.

Consequently, more and more urban planners will be working in coalitions at the interface of established institutions and individual aspirations: between the “indoor-world” of their own organization and the “outdoor-world” of the other parties involved. In order to be effective at this interface, they need to be able to switch between and bridge different coalitions. The key question in this chapter will therefore be: How do urban planners connect established institutions and individual aspirations in the new context of coalition planning? Underlying questions to be addressed in this chapter: What labels and terms are used to describe the new sharing and collaborative context? How can governmental, business and civic actors form coalitions to stimulate a new interplay? What types of coalitions can be characterized? And more specifically: How would governmental authorities (and other established institutions) choose between a directing, partnering or facilitating role or for no role at all? And how can urban planners build and guide these coalitions with effective approaches?

This chapter represents a snapshot of the research on coalitions, so is work in progress and therefore unfinished. Nevertheless, the rise of coalitions in multiple governance environments is real and in need for a planners’ response.

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## THE COALITION PLANNING CONTEXT: A CHALLENGING FIELD OF RESEARCH

>> A group of people that build their own homes through co-housing, a group of neighbors that run a community center, a group of consumers that start their



own energy company or a group of professionals that share new information through open source platforms are all relatively new phenomena in (state) government dominated northwest Europe. With the help of social media and other smart and emerging technologies it has become easier to find individuals and build a community or network to share products, services, knowledge, values and ownership. Castells (1996) was one of the first to introduce the informational age and network society. It reframed our understandings of the social world and since that time, networks have increasingly been the subject of research (Innes and Rongerude, 2013) and reason to also change our view and frame of institutions. Rifkin (2013) calls it the “third industrial revolution” and in the Netherlands Rotmans (2014) is promoting the contemporary transition to a new era, in which he is emphasizing that not only do we live in an era of change, but we also encounter a change of era. Like Rifkin, he compares it to the revolution at the end of the 19<sup>th</sup> century. Rotmans talks about an economic, ecological and institutional crisis and emphasizes the opportunities of this multiple crises for system innovation (see also Grin et al., 2010) from the perspective and power of clients, citizens, employees and consumers. In his view, established institutions are reaching their expiration date, because they are built on system values instead of human values. In this chapter we share and support the renewed attention for bottom-up movements in self-governing networks or communities, but come up with another perspective on established institutions. We use the sociological perspective on institutions and define it as organized patterns of socially constructed roles and rules of behavior (Van Meerkerk, 2014). Another perspective on established institutions also brings along another perspective on “old” and “old-fashioned”. Living in a world of change is not about radical changes in approach from an old (and wrong) to a new (and good) approach, but about gradual changes of approach combining the useful and practicable parts of old and new, making room for a variety and mix of different approaches (see also Van der Steen et al., 2015).

In this chapter we will describe different terms and trends that support new ways of sharing and how they can have a disruptive impact on established institutions. They give words to the changes in and increased interrelatedness between economy, society and democracy. Most of the terms introduced relate to individualization, on the one hand, and to collaboration on the other. Here we state that a more active and entrepreneurial view on citizenship does not necessarily correspond with the decline of institutions, but does demand more adaptive institutional arrangements and new relationships between both. It is about the diversification of society, on the one hand, and the tarnishing distinctions, on the other hand. This leads to a more complex society in which power is dispersed, tensions are more significant, mutual dependencies are growing and the need for working together is getting bigger (Zuidema, 2011; Innes and Booher, 2003). Within this complex and interrelated society, solutions for social problems are likely to be found on the interface of different worlds:

disciplines, sectors, domains, organizations, cultures, etc. A way to bring these worlds together is to build coalitions. We define a coalition as a group of diverse and autonomous actors (organizations or individuals) that want to achieve something better in the future. Coalitions come into being within a certain public arena where individuals, groups and institutions associate with each other around ambitions. We state that ambitions act as the fuel for coalitions in striving for a desired future place or situation (see also Kaats and Opheij (2012) for the components and importance of ambitions in a collaborative context). In comparison to the present situation, this causes a positive potential which fuels and motivates actors to develop a shared repertoire of action and arrangements. Coalitions themselves are as diverse as their five key elements that we here use to define a coalition: ambitions, actors, arenas, actions and arrangements. Moreover, coalitions are dynamic entities and can change over time.

This demands situational awareness and a common view and language to discuss changes in approach. In line with De Haas (2006), planning can also be regarded as a language game: a vocabulary of actions with its own grammar and syntax. In a diverse society and in coalitions of diverse actors the many languages spoken express how we perceive the world around us and how we indicate and interpret boundaries. A confusion of tongues blurs a good assessment of the situation. Sometimes we lack the words to describe a new way of working together and are often forced to use familiar words with the addition of “de”, “dis” or “un”. Other times we use new words, but these words do not yet correspond to our behavior. This is especially the case when we are working in new coalitions: we still feel committed to traditional approaches, but also appeal to new approaches. When we are not aware of our reflexes and contradiction in speech and practice, we give mixed signals or create false expectations. In addition to this we will also have to create words that explain combinations of approaches and intermediate, in-between and fluid situations. In coalitions we cannot regard the methods of working used in our own organization as leading; we will have to search for joint methods and manners.

Zuidema (2011) describes the increased social fragmentation and complexity as a reason for an increased plurality of governance approaches. “Instead of expecting that a new dominant mode of governance will emerge, we should expect to end up with more ‘fuzzy’ notions of governance where the roles and responsibilities [...] are both spread and variable” (2011; p23). This justifies a plural picture of approaches, but also challenges us on when and how to use what approach. “If various governance practices draw upon very different ideas about what is ‘real’ and ‘rational’ (i.e. the underlying philosophical plurality), then where is the common ground that serves as a starting point for developing arguments for choosing between them?” According to Zuidema this does not have to lead to an “anything goes” perspective on governance. Situational awareness and contextual alertness help us in assessing adequate approaches,

and this is exactly why we introduce the concept of coalition planning. Starting from theory and practice, we will, in this chapter, distinguish three arenas (established, created and spontaneous) that correspond to three types of coalitions (directive, collective and connective) with unique characteristics and related institutional roles (directing, partnering and facilitating). This brings us to the following line of reasoning on why (research on) the concept of coalition planning could be useful:

- The world is getting more dynamic, more diverse, more interconnected, more fluid and, hence, more complex. In this complex society actors are less capable of realizing their ambitions independently and need diverse perspectives on social problems. A way to overcome this challenge is to build coalitions of diverse actors.
- Because of the diversity in actors involved, building coalitions in itself is a complex activity. The more we work in coalitions, the greater the need to differentiate in these relatively complex modes of governance.
- New types of coalitions do not replace more familiar types of coalitions: they are co-existent and complementary. The one type of coalition is not better than the other, but they each have their advantages in specific situations.
- The types of coalitions are not sharply separated entities. Coalitions can change over time and types can be combined to realize ambitions. It becomes more important to be adaptive in switching between and bridging coalitions, as well to be explicit about the coalition approach applied and the roles played.
- Switching and bridging between coalitions and roles demands not only a new and broader repertoire of actions, but also a new and broader vocabulary to share expectations and considerations. Language is often confusing when new behavior is needed and actors are not aware of their own reflexes.
- A common view and language helps us to make deliberate choices that are understood and supported. Therefore a pluralistic perspective on recognizing, building and evaluating coalitions is needed to stimulate mutual and situational awareness, and deliberately choose an appropriate coalitional approach that can be adjusted to changing situations.

### **COALITION PLANNING: A BRIDGE BETWEEN INDIVIDUAL AND INSTITUTIONAL APPROACHES**

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>> Coalition planning is about supporting deliberate choices for roles, rules and responsibilities seen from various perspectives and situations to be able to switch, bridge and mix between different types of coalitions in order to reinforce established institutions and individual aspirations. This means that coalition planning breaks with one-dimensional and functional perspectives and promotes eclectically combining meanings and understandings. It stimulates multiple responsibilities, multiple governmental roles and multiple institutional rules and also the temporary and provisional characteristic of

these. Civic actors are considered to be of the same worth as governmental or business actors and collaboration between these actors can produce creative solutions for complex problems. Healey (1997 and 2003) and Innes (2016) were one of the first to focus on collaborative planning and communicative planning. Inspired by Habermas' (1984) ideas about communicative rationality they promote the ideal of collaboration and the advantages of equally empowered actors bringing their different interests and perspectives together in an authentic dialogue skillfully managed by a (neutral) facilitator. Healey and Innes take an institutionalist approach enabling all stakeholders to have a voice. Here we support the institutional approach and collaborative rationality, but also add self-governance for civil initiatives and an individualist approach. Individuals have become more pro-active in the past years and have shown that they can organize and govern themselves, sharing what they have and need as a new fully fledged world next to the market place and governmental domain. Each of these actors can initiate a coalition and fulfill similar corresponding roles. To emphasize this we prefer to use the term "coalition" instead of "governance", which seems to have more similarities with the words "government", "management" and "institution".

A difference between individual civic actors or groups around civil initiatives and governmental or business actors is that they often don't have the (formal) position or job to create values and reach ambitions. Civic actors often start voluntary out of a personal drive and are not trained or educated to initiate coalitions. They do however learn in practice and exchange experiences in "rolling stone meetings", "living labs", "parades" or "festivals" and come up with own ways of working and even own currencies to measure value (see the "Bristol Pound" or the "Makkie" in the east of Amsterdam). This can lead to small scale enclosed communities or collectives stimulating solidarity and self-sufficiency. Or to large-scale international networks or connectives open to everyone using technology to share knowledge (see for example Wikipedia) and services or even spare time. Sometimes these exist only virtually, but quite often these are connected to physical and offline activities (see for example the game of Ingress). Individuals in these collectives and connectives live and work according own rules, laws, tastes and morals and search for new ways to be in control of their own future. This also provoked renewed attention for the lives of community-members in former times or in developing countries, before we got the contemporary western institutions and systems. Some of the new community-members present themselves as against the contemporary institutionalized world. The individualized and dynamic society and the centralized and bureaucratic institutions seem to have grown apart.

In the documentary of Backlight (2014) called "Youtopia" three local communities are filmed in which people felt that the only way to introduce other ways of living and working is to start a community and isolate this group from the

contemporary institutional world. They portray the post-capitalistic colony Calafou close to Barcelona where hackers build open hardware and software and an independent communication network. They also portray the Hungarian eco-village of Galgahéviz that have their own economy disconnected from Europe and the transition town of Bristol with an independent mayor and own Bristol pound, declared to be the happiest city of England. These assertive citizens have own aspirations, needs and desires and explore new modes of personal leadership and collective decision-making, more focused on acting and experimenting than on talking and deliberating. Are these communities freer, more democratic, more productive and more adaptive to live and work in than the established institutions we know? Can they co-exist and co-evolute with existing institutions? What could be their role and what institutional arrangements do they minimally need? In what situations should the government withdraw, participate in initiatives from others or take the lead?

With coalition planning we place these modes of working together on a spectrum, explore a broader view on our existing vocabularies and repertoires of action and emphasize the importance to bridge different worlds and views in many ways: between civic, business and governmental actors, between directive, collective and connective ways of working and between institutional and individual approaches. Coalition planning helps to cross borders and navigate in the constantly changing landscape of coalitional approaches. It is not about working in new, connective coalitions, but about appreciating and applying all three types of coalitions simultaneously without getting lost. So old paradigms will not disappear and will still exist alongside upcoming ones in a more eclectic perspective. Lewis and Smith (2014) write that organizational answers should move from “either/or” debates toward “both/and” expectations. This makes it fairly easy to get lost, especially when all the terms and labels that are used to describe the newly considered world are also rooted in older vocabularies. Before we go into the different types of coalitions, let us first get a better understanding of the words and worlds that lead to coalition practices and the urge for coalition planning.

### **WORDS CREATE WORLDS: TRENDS AND TERMS THAT LEAD TO COALITION PRACTICES**

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>> “Open”, “interactive”, “spontaneous”, “adaptive”, “co-creation”, “networking”, “cooperation”, “crowd sourcing” – popular words from a long list. Some are new, some are old but still widely used, while some old words are reinvented and receive new meanings (see also Arts and Tatenhove, 2004, on old and new policy idioms). Since Castells (1996) we use many different labels for similar trends and concepts. Most terms relate to the desire among participants to create fairer, more sustainable, and more socially connected societies (Schor, 2014). They



became broadly manifest at the same time the economic crisis became manifest and might have reinforced each other. Some concepts are seen as idealistic and get toned down or provoke new concepts. It is difficult to find the right definitions, because people apply different lenses and language when thinking about similar ideas. Online platforms make it easier to discuss these differences. When terms become popular they tend to get used as “umbrella terms” for a broad range of activities and trends. The more inaccurately the term is applied the more its value is questioned. Each label seems to have a certain period of popularity and gets contaminated after a while. In this respect, also the moment or political context in which a new word or label is introduced could give the word another connotation in debates than originally meant. And eventually the flame of meaning behind an important concept dies out or becomes fuzzy.

Here are some examples of temporary popular terms that took on different meanings. In 2010 in the UK, the new conservative Prime Minister David Cameron, launched the term “big society” as a political ideal to transfer power to local communities (see also Franklin and Noordhoek, 2013, about the development of this concept and its impact on the Netherlands). For various reasons the “big society” declined as an instrument of government policy (see Civil Exchange 2015). Cameron did not use the term in public after 2013, and the label ceased to be used in government statements. In the Netherlands, Hajer (2011) introduced the label “energetic society”: a society of assertive citizens and with an enormous pace of response, learning ability and creativity. As the term became more popular, some civil servants became frustrated with it because it seems to frame the public sector as “not energetic”. They also feel that it takes considerable governmental effort to release energy in society. It is not a self-evident process. In 2013 both the King and the Prime Minister of the Netherlands used the term “participative society” in their speeches (King’s Speech, 2013). It became the word of the year in 2013, but was rapidly interpreted as a top-down concept to reduce governmental expenses and stimulate almost compulsory volunteering (see also Tonkens (2014) for five misinterpretations of the participative society). According to the Institute of Dutch Lexicology, in 2015 the term was already taken up in the top 10 words that people do not “want to hear and use anymore”.

Although these terms and labels might be temporary and generate positive and negative attention, they do frame how we interpret and understand the context of our society. In interactive processes, words reflect reality and influence our perspectives, behavior and action strategies (Van den Nieuwenhof, 2013). In this respect it is remarkable that the new concepts seem to reflect combinations: liberal and social, commercial and social, professional and civilian, private and public, institutions and individuals, and paid and voluntary. When studying the different terms we experience that boundaries and separations fade away and become more fluid. This makes the world challenging, but also more complex.

Hence, the need for new terms and labels can be well understood, as well as their insufficiency to describe the pluralistic world. In the following sections we will try to unravel a selection of concepts, but also to embrace the contradictions within and between them. Frequently used terms will be clustered around a sharing economy, social entrepreneurship, public participation, self-organization and direct democracy. We will describe changes in the relationship between market and society and the implications for the public sector and governmental role. Social and business actors will be seen to claim a bigger share in the production of public values. Governmental authorities will be challenged to better connect with their social environment, to re-invent their own strength and to develop a broader view on their own role and repertoire of actions. We will briefly explore, in general descriptions, the changed context and proceed gradually to build a model for a new interplay between governmental, business and civic actors, after which we zoom in on the specific role of coalition planners and add new terms and labels to their vocabulary when it comes to guiding and building coalitions.

### A SHARING ECONOMY: UNLOCKING UN-USED VALUES

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>> From an economic approach, Kostakis and Bauwens (2014) use the term “commons-oriented economy” and Botsman and Roger (2014) call it a “sharing economy” and “collaborative consumption”. This sharing or collaborative economy is an economic system of decentralized networks and marketplaces that unlocks the value of underused assets by matching needs and “haves” in ways that bypass traditional intermediaries. Examples often referred to are Airbnb, Zipcar and Uber. A Dutch example is “Peerby” where you can borrow and rent things you need from neighbors. Through these networks excess capacity in goods and services is redistributed, shared and reused, hence the frequent link with the term “circular economy”. Many organizations have been eager to position themselves under the “big tent” of the sharing economy, because of the positive symbolic meaning of sharing, the magnetism of innovative digital technologies, and the rapidly growing volume of sharing activities (Schor, 2014). However, the question some scientists raise is: Is it still sharing when money is involved? Eckhardt and Bardi (2015) choose the term “access economy”, because they relate sharing to a social context and not to an economic context. The access economy is a business model where goods and services are traded on the basis of access rather than ownership: it refers to renting things temporarily rather than selling them permanently.

Benkler and Nissenbaum (2006) write about “open source economics” and “commons-based peer production”. Peer relations are based on the assumed equality in power, ability and impact of the participants of the cooperation to perform a common task or create a common good. It is open to participation

and used in the widest possible number with forms of decision making and autonomy that are widely distributed throughout the network. It is governed by the community of producers themselves, not by market allocation or corporate hierarchy. Schor (2014) too states that “new technologies of peer-to-peer economic activity are potentially powerful tools for building a social movement centered on genuine practices of sharing and cooperation in the production and consumption of goods and services. But achieving that potential will require democratizing the ownership and governance of the platforms”. This is one of the reasons why some think Uber is better understood as an innovative company than as a sharing network or platform.

The idea behind most of the above described labels is that sharing is multiplying. Ownership and de-ownership are important themes. People are producers and consumers at the same time and when products are paid for, it is payment for access instead of payment for ownership. The use-value of property is freely accessible on a universal basis through new modes of property, which are not exclusive, although they recognize individual authorship (see, for example, the Creative Commons licenses). It is value driven by unlocking the value of unused or under-utilized assets whether it is for monetary or non-monetary benefits. One of the main goals is sustainable value creation, which incorporates ecological and social values next to financial values in the business case (see Hoek, 2013). To critics this sounds like utopian outcomes: empowerment of ordinary people, efficiency of systems, and even lower carbon footprints. They denounce the sharing economy for being about economic self-interest rather than sharing, and for being predatory and exploitative (Schor, 2014). Not surprisingly, reality is more complex and combined terms, like “social entrepreneurship” are introduced to show the absence of a stark separation between economic and social life.

### **SOCIAL ENTREPRENEURSHIP: COMBINING ECONOMIC AND SOCIAL VALUES**

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» In the documentary “Power to the People” Jeremy Rifkin explains the rise of social entrepreneurship as follows (Backlight, 2012): “How can you be social and entrepreneurial? Entrepreneurs are seen as autonomous individual agents seeking their self-interest against the other. For the young generation being social and entrepreneurial is not a contradiction, it is a perfect fit. (...) In a sense it is actually a little bit beyond capitalism and socialism, because it takes the best of both and leaves the worst behind. With the third industrial revolution everyone is an entrepreneur. That’s the best of the market: take a risk, be an entrepreneur and be creative. But your success depends on being in deep social collaborative networks, it depends on solidarity. So it takes the best features of both, but it eliminates the centralizing features of the market-place: winner

takes it all. And the centralizing features of the state, where the state becomes big brother and takes care of all of you and nobody has an incentive to be individually entrepreneurial” (see also Rifkin, 2013).

In other words, social entrepreneurs are entrepreneurs that are able to make a business case for their social ambition, in such a way that their (civil) initiative is financially profitable and at the same time has impact on persistent social problems. Just as the concept of sharing, the concept of social entrepreneurship is nothing new. The term has, however, lately gained considerable interest in both the literature (e.g. the *Journal of Social Entrepreneurship* started by Routledge in 2010) and in practice. Examples are Jamie Oliver’s restaurants that help disadvantaged young people, city farming initiatives to stimulate healthy and local food production, home and care services such as Benevilla in the United States to keep people in their own homes for as long as possible or such neighborhood networks as “Geef om de Jan Eef”, a former declined shopping area in Amsterdam that helps retailers (see for more examples: [www.social-enterprise.nl](http://www.social-enterprise.nl) or <https://socialenterprise.us>). As with all the labels and concepts described in this section, clear, demarcated definitions are difficult to give. Their variety and uniqueness represents at the same time part of their success. Schulz et al. (2013) keep the terms “social entrepreneur” (the person), “social enterprise” (the organization) and “social entrepreneurship” (the activity) separate. They define the last one as follows: “consciously and innovatively striving for an improvement on a social issue through offering goods and services that help solve this issue in exchange for payment”.

Zahra et al. (2009) combined twenty definitions and propose that social entrepreneurship “encompasses the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner”. They elaborate on three types of social entrepreneurs that are focused on local needs (social bricoleurs), on gaps caused by market and governmental failures (social constructivists) or on systemic change (social engineers). The bricoleurs have a small-scale impact by recognizing local opportunities and using local knowledge. The constructivists mend the social fabric where it is torn and are designed to be institutionalized. Finally, the engineers create new social systems and challenge the existing order. Furthermore, they zoom in on the ethical challenges that naturally evolve from the combination of economic and social values (see also Alter (2004) for the conceptual varieties in both values). Because the goals of social enterprises are deeply rooted in the values of their founders, balancing the motives to create social wealth with the need for profits and economic efficiency can be tricky. Some of these social entrepreneurs start from a personal interest to help themselves – their child, friend, parent or neighbor – and gradually extend their initiative to help others and form a network or collective. The advantage of this approach is that they

often personally have felt the need for their initiative and have been or still are in the same position as their users, clients or members.

Social entrepreneurs often offer more tailor-made concepts for specific target groups and lower prices. Some social entrepreneurs even act as prime movers of innovation and are up for reforming established institutions. They challenge private companies to empathize more with their clients and end-users, to go beyond corporate social responsibility and to experiment with new products, services and tariffs. They challenge governments to trust the resilience of society itself, to formulate flexible regulations and to work with other governance models. We already described that the democratization of ownership is a matter of interest in the sharing economy. By applying new and untested organizational models, social entrepreneurship raises concerns about the legitimacy and accountability of the actors involved (Zahra et al., 2009). Accountability is important, because actors often take responsibilities for tasks that used to be public or semi-public. Social entrepreneurs may also appeal for public money or make use of public space. For governments this is a new and sometimes inconvenient situation. They are responsible for that specific policy field and the continuity and the accessibility of the service, but not for individual entrepreneurial choices (see Schulz et al., 2013). Social entrepreneurs open our eyes to the fact that every person or citizen who socially cares can take initiative and that it is not only up to the government to define and produce public values. This makes a reconsideration of the role of the government necessary, with more deliberating interpretations and fewer sharp distinctions between civil initiators and civil servants.

#### **PUBLIC PARTICIPATION: ENGAGING CITIZENS FOR PUBLIC VALUES**

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>> From a political science and public administration point of view there has been much written about how to better involve citizens and others in policy-making and decision-making processes, with such frequently used labels as “interactive policy-making”, “civic engagement”, “open planning process” and “public participation”. Public participation is an older term, but still widely used. It became a dominant paradigm in the 1990s. In theory as well as in practice people are ambivalent about the value of public participation within existing democratic institutions. Innes and Booher (2004) describe five purposes that encompass most of the claims made to justify participation. The first is to find out what the public’s preferences are so these can play a part in decision-making; they are, after all, the electors of politicians. A second is to improve decisions by incorporating citizens “local knowledge”. Both purposes are increasingly important as government grows further away from its constituencies. Public participation has a third purpose: advancing fairness and justice for especially disadvantaged groups. A fourth purpose is about



getting legitimacy and support for public decisions, and the fifth is that public officials assume this task because the law requires it. The authors state that most of these purposes, except for the last one, are not met by traditional, legally required participation methods, such as public hearings, review and comment procedures, and citizen-based commissions. They might even work counterproductively as citizens feel compelled to address the issues in polarizing terms and often get involved (too) late in the process through which they can only react to plans, instead of coming up with pro-active ideas and solutions.

Innes and Booher therefore plea for more collaborative practices and add a sixth and seventh purpose for participation to build civil society and to create an adaptive, self-governing polity capable of addressing wicked problems in an informed and effective way. They introduced the term “collaborative participation” and describe the differences as follows: “one-way talk vs. dialogue; elite or self-selected vs. diverse participants; reactive vs. involved at the outset; top-down education vs. mutually shared knowledge; one-shot activities vs. continuous engagement; and use for routine activities vs. for controversial choices”. This allows public participation to be used as a broad label that goes from informing and consulting to co-creation or even self-organization. This is one of the reasons why public officials and participants can have different expectations of the participation process. When these are not discussed openly in words and terms that are recognizable to both worlds, it can reduce trust and harm relationships. With that respect management of expectations is important, but also the understanding of the institutional world by citizens, and of the individual world by public officials. Administrators can be out of touch with communities and local knowledge, but citizens can also be out of touch with political and economic realities, and long-term considerations for a community or resource. Interaction between both worlds is necessary, but it does not always have to be the government that takes the lead in this interaction.

A term that is used to highlight the pro-active role of citizens and others in policy-making is “policy entrepreneurs”: actors that advocate and strategically seek to change or oppose policy from their own motivation (Verduijn, 2014). This can refer to actors from within or outside the policy arena. Kingdon (2002), the first to introduce this concept, portrays policy entrepreneurs as comparable with business entrepreneurs in that they are willing to invest their resources, time, energy, reputation and sometimes money, in the hope of future return. Kingdon’s research topic was mainly about agenda setting: why do certain issues receive attention at certain times? In his model, he specifies three streams: problems, policies and politics. When the three streams collide, a window of opportunity is created for policy entrepreneurs to get their ideas accepted and adopted by political actors. He states that the power for policy change (or

for prevention of change) lies in the recognition and anticipation skills of the policy entrepreneur as a driving force for action. This means that the policy entrepreneurs must have knowledge of and experience in the institutional system, and must know how to use this system to reach their objectives. They are creative, resourceful and opportunistic leaders that collaborate with others to manipulate politics through such strategies as advocating new ideas, demonstrating and raising the urgency of the problem, developing proposals, defining and reframing problems, specifying policy alternatives, mobilizing public opinion and helping to set the decision-making agenda.

In the social sciences the debate is about whether structure or agency is more important in shaping human behavior. Structure is the recurrent patterned arrangements which influence or limit the choices and opportunities available. Agency is the capacity of individuals to act independently and to make their own free choices. The concept of policy entrepreneurs is rooted in the agency approach (Verduijn, 2014). Wagenaar (2007) describes a collection of agents as a complex system. He sees the complexity of social systems as a motive for participatory and deliberative models of governance, because these models increase interaction within the system and thereby system diversity and creativity. The argument is that active participation of citizens in public decision making will increase their autonomy. "Citizens learn to distinguish between their personal needs and desires and the common interest. In addition they practice various important democratic skills such as conflict management, the careful articulation of their own position, listening, arriving at productive compromise, patience in dealing with thorny public issues, and the appreciation of difference" (Wagenaar, 2007).

So participation in policy processes is seen as strengthening citizenship. Therefore the terms "active citizenship" (see Van de Wijdeven, 2012) and "voluntarism" are applied and when governments stimulate this, we talk about "invitation planning" – all terms that could be seen as inventions of policy makers (Verhoeven and Tonkens, 2013). Sampson et al. (2005) studied the increase of civil initiatives and use the term "civil society". When governments connect with initiatives in this civil society we start to use the term "governmental participation" instead of "public participation", corresponding to the term "civil servant". We try to invent labels that overcome the idea that it is always the government that invites people to participate in the governmental agenda, while many initiatives arise from one's own movement (Specht, 2012). Is in those situations policy-making still necessary? And who is organizing who? And what if people are organizing and governing themselves? In reality there is not a sharp division between the organizer and the organized or the inviter and invited.

## SELF-ORGANIZATION: *INDIVIDUAL VERSUS INSTITUTIONAL VALUES*

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>> From an institutional perspective civic initiatives are referred to as “self-organizing” or “self-governing” initiatives and emerge from the dynamics within civil society itself (Boonstra and Boelens, 2011). Perhaps this is common in other societies, but in the predominantly institutionalized Western Europe, we have, in the last few decades, tried to prevent this from happening. Authorities wanted to be in control of interventions that influence public policy and public space. The more complex and interrelated our world is, the more authorities realize that they will have to deal with uncertainty, and experience the relativity of their controlling power. Just as the “sharing economy”, “social entrepreneurship” and “public participation”, the term “self-organization” has now become a popular concept, with its meaning changing from theory to practice. In practice, it is often used to label any new or bottom-up approach based on action and referring to “do-it-yourself”, while scientific ideas are largely rooted in chaos theory, complexity science and systems thinking (Heylighen, 2001). In practice, self-organization is associated with highly individual acts and because there are no general applicable approaches scientists focus on underlying patterns and values. They present a non-linear world view in which the impact of external influences makes it impossible to predict a priori the impact, size or extent of self-organizing processes. They consider these kinds of processes as open systems constantly adapting to a changing context.

In the words of De Roo (see Chapter 3) self-organization is initiated from a break in symmetry or a mismatch within existing patterns that reflects a continuous building-up of tension until a critical point is reached. This tipping point is followed by a release of energy and causes adjusting behavior, which can result in a new spontaneous pattern. For this, often used metaphors are “bird flocking”, “schools of fish”, “firefly dances”, “bee hives” or “cathedral termites”. “The creations are so complex that is hard not to believe they are produced by designers, but reality is more inspiring. There are no leaders or directors [...], the complex patterns are emergent, they rise up out of distributed local interactions” (Uitermark, 2015). Also from a social science perspective on self-organization, the interactions between social agents are not coordinated or externally controlled. Uitermark explains that the development of technologies for distributed communication has reinvigorated hopes that people can coordinate and cooperate without delegating power to a central authority. He states that self-organization has developed into a paradigmatic concept that both explains and prescribes how societies, and also cities, function. It has become a political ideal, to fill the void that is opening up, as both the state and market are increasingly perceived as undemocratic, unjust and inefficient. Because of the ongoing budget cuts this ideal is even more promoted by governmental authorities and, for them, it becomes more important to make

local communities responsible for public values (playgrounds, neighborhood safety, libraries, etc) that might otherwise be impossible to finance.

Can self-organization indeed be considered as a political or institutional concept and something to aim for? And if so, do we have the instruments to do so? “Planning”, “design”, “control” and “management” are terms that are opposed to this way of working. Intervening in self-organizing systems and processes with our institutional repertoire of actions might not have the desired effects, or, could even have destructive effects. According to Uitermark (2015) it helps to emphasize that self-organization is not always good and will not always succeed. He argues that self-organization is often misunderstood and may produce adverse consequences when used as a policy guide. While self-organization is too inspiring to abandon, its harsh realities need to be accounted for if we want to think and work with it. Related to this, De Roo writes in third chapter of this book that “the traditional attitude among planners is to consider the world to be an objective fact of their own creation, with them in control”. The contemporary attitude among planners according to him is being “responsible for achieving consensus among stakeholders and constructing an agreed reality”. De Roo states that both attitudes presume a world that “is”, but if we appreciate self-organizing processes, the world has to be seen as “becoming”. Should we be willing and able to guide these processes of becoming? De Roo and Uitermark both see potentials, but make a plea for a better understanding of systemic rules, mechanisms and rhythms of self-organizing processes.

To better understand self-organizing processes in social environments De Roo (see chapter 3) elaborates on the term “self-organization” by incorporating intentional behavior. According to him, in a social environment there is always intentional behavior to some extent. When it is only about individual intentional behavior, not the quest for a collective initiative and action, he uses the term “self-organization”. This, however, culminates in a collective result or pattern when the right conditions are met, but is not the product of collective intent. When collective intent is the case, De Roo uses the term “self-governance”. Self-governance refers to situations in which citizens and non-governmental actors manage activities relatively independent from governmental actors (Rauws, 2015). Under the umbrella of self-governance De Roo specifies “self-management” and “self-regulation”. In the first situation we can speak of collective actions, but not about a collective initiative, while in the second situation both apply. The main debates on self-organization can be summarized around three issues (Rauws, 2015; Boonstra and Boelens, 2011; Van der Steen, 2013; Bakker et al., 2012; Specht, 2012; Van Meerkerk, 2014): whether people deliberately or spontaneously organize themselves, whether they pursue a collective ambition or bring together individual aspirations and whether the government is involved or not. Here, we emphasize mainly the individual approach to self-organizing and self-governing processes without the

involvement of (formal) institutions, whether governmental, private or social authorities. Professionals could very well be part of these processes, but only on their personal behalf, without representing an institution or formal position.

From an institutional perspective, established organizations and authorities can, however, play a facilitating role in stimulating self-governing initiatives. Therefore professionals and officials are looking for both rules that make self-organization happen and conditions under which self-organization could be influenced (triggered, stimulated, stabilized, avoided, etc). Doing this in a traditional way by mapping out civic initiatives to get a better grip and formulate policies to promote and exploit self-organization might seem plausible, but according to Uitermark (2015) is symptomatic for a policy fixation among researchers and public officials. Here, we also encourage the idea to go beyond a policy fixation in order to be able to allow individual differences to act in line with the strengths and principles of self-organization and to remain focused on the challenges that people themselves encounter when launching an initiative. Most literature and researches are about how to better help governmental authorities to fulfill a facilitating role and catch up with dynamics in society. This is not surprising because they have more affinity with scientific research and have the recourses to investigate this.

However, citizens themselves could be helped with research as well to set up an initiative, communicate about it and connect to others in a network or community. They need basic verbal, social and organizational skills, but they also need to have the ability to learn along the process, adapt to changing situations, improvise on the spot and keep people motivated. A lack of these skills, time or motivation may prevent people from starting and joining an initiative (Bakker et al., 2012; Tonkens et al., 2015). When specific civic groups start initiatives and take actions and others don't (for various reasons), will their needs and wants be considered and taken into account? When governmental authorities are not involved or only involved from a distance, then who decides on what is good for society? What is the legitimacy and democratic value of self-governing civic initiatives? And how is this related to politicians elected by citizens and supposed to protect civic interests and rights? It makes us wonder whether, in this critical society, there is a sharp distinction between democratic decision-making by representatives and acting by the citizens themselves in line with their personal political ideals. This brings us to terms and labels used for contemporary democratic models.

#### **DIRECT DEMOCRACY: *COMBINING TALKING AND ACTING***

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>> The most familiar word and model to describe the existing Western governance system is "representative democracy". Healey (1997) describes that "we are taught an idealized model of a democratic state, in which governments



are created on behalf of, and at service of, the people as electors". The elected politicians are responsible for articulating the public interest and for overseeing officials (administrators and experts) in governmental authorities. According to Healey, this model "encourages the development of hierarchically-structured bureaucracies focused around technical and administrative expertise, in which officials justify their actions and decisions upwards to their seniors and the politicians to whom these are accountable, rather than outwards to 'people'". She criticizes this model because she considers the interests as being too diverse for politicians supported by their officials to aggregate in a meaningful way; they also need to search for a more responsive and collaborative relationship with economic and social life. Wagenaar (2009) and Van Meerkerk (2014) refer to the term "participatory democracy". Others use terms such as "direct democracy" and "DIY Democracy" to show that the government does not necessarily have to be involved and that is about bringing ideas and action closer to each other (Tonkens et al., 2015). These terms and concepts are seen as a ways to overcome the declining legitimacy of contemporary liberal democracies. Could the role of (civic) initiators in the direct democracy be seen as the role of politicians in the representative democracy? They do set the agenda, organize meet-ups, organize votes for ideas, attract followers on Twitter, LinkedIn and Facebook and work hard to stay popular.

In this respect, Tonkens et al. (2015) talk about a "Montessori democracy" (in line with the Montessori educational approach that emphasizes individual children's needs). A local democratic innovation is based on civil initiatives and a facilitating role of the government, trained in letting loose and only helping when necessary. The question Tonkens et al. pose is whether one can understand civil initiatives as a mode of democracy. Is democracy only about talking, debating and decision-making or is it also about acting? And one might wonder if the government has to be involved in order to talk about democracy. "Associational democracy" is a concept, originally described by Hirst (1994) and elaborated by Warren (2001), set up to overcome the limits of states and markets as a means for making collective decisions and organizing collective actions. In the words of Warren, associations cultivate the virtues of citizens and provide alternative forms of governance: "when associational life is multifaceted and cuts across identities, communities, geographies, and other potential cleavages. It provides a dense social infrastructure enabling pluralistic societies to attain a vibrant creativity and diversity within a context of multiple but governable conflicts". In Warren's view associations enable more democracy in more domains of life and give a voice to those disfavored by existing distributions of power and money.

There are, however, different views on the topic of representativeness in newer, direct modes of democracy. Zuidema (2011, p34) writes that "direct democracy can also be criticized as there are many groups in society that are ill-equipped

to participate, while powerful groups with abundant resources can potentially dominate the participation process". Representativeness is not only a recent topic; it has always been an issue, in particular, in representative democracy. Innes and Booher (2004) describe traditional participation methods, which discourage busy individuals and usually attract retired white men. Do these participants then represent the public? Do they vote for self-interest or collective interest? Tonkens et al. (2015) write about the issues of new democratic modes, moving away from representatives who have to impersonate their constituency, and moving away from the political arena as the place for debates on future direction. They describe a trend to the juridification of the political system, on the one hand, and the informalization of the interaction, on the other. In this trend self-reflection might become more important than representation.

According to Lawrence et al. (2002) forms of self-organization and self-governance in a direct democracy can lead to "proto-institutions", which are new institutional arrangements created through interaction and experimentation. Van Meerkerk (2014) writes that through interaction and bonding among citizens and public officials, information exchange, learning and mutual experience develop that may promote new patterns of relationships: "Processes of self-organization might, in turn, lead to new relationships between governmental institutions and civil society. A form of participatory democracy enters a representative democracy, which could lead to a reorientation of existing democratic institutions". However, there is a risk that emerging proto-institutions in a direct democracy will evaporate and existing patterns of behavior within the institutions of representative democracy will be re-established. Tonkens et al. (2015) plea for a good balance between democratic forms and disprove the idea that it is a trade-off in which the rise of a direct democracy will mean a fall of the representative democracy. In other words, when we want to stimulate direct democracy, we should as well invest in reinforcement and renewal of the representative modes of democracy.

### **A NEW INTERPLAY: FLUID BOUNDARIES BETWEEN GOVERNMENTAL, BUSINESS AND CIVIC ACTORS**

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>> Successively, the terms and labels that we have described here are associated with the "sharing economy", "social entrepreneurship", "public participation", "self-organization" and "direct democracy". From a business point of view most concepts deal with the sharing of under-used products and services. From a civic point of view most concepts express a wish for more empowerment and satisfaction. From a governmental point of view most concepts are about dealing with complexity and legitimacy. The concepts all challenge the way established institutions work. A red line through the concepts is the democratization of ownership: how can we increase individual autonomy and

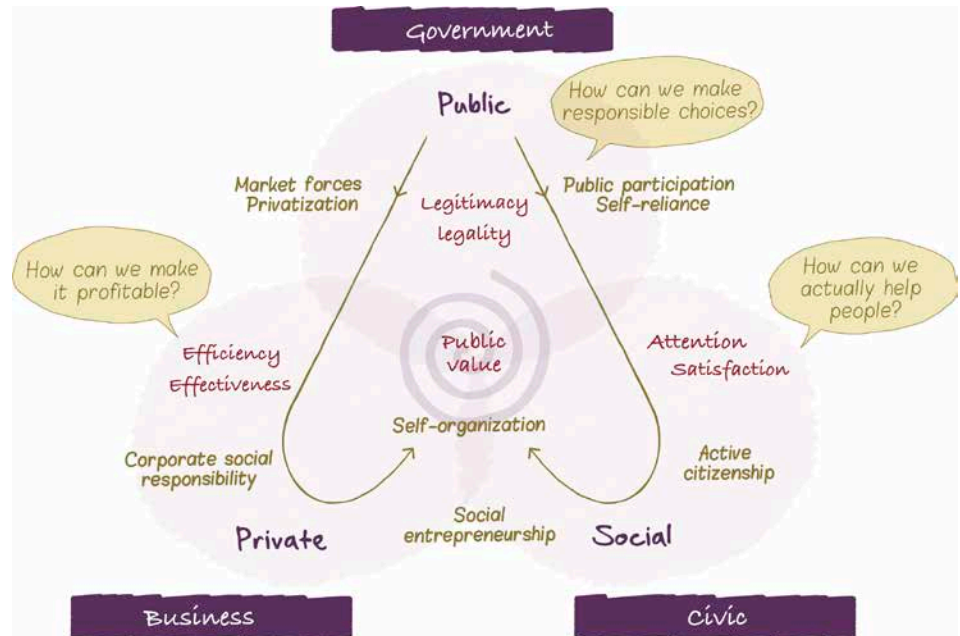
intrinsic motivations to voluntarily undertake initiatives, but at the same time stimulate responsibility and commitment for collective actions in (public) value creation? Citizens and consumers are in any case no longer considered as the uninitiated in a welfare state or commercial market. As a consequence, entrepreneurship also spreads to civic and governmental sectors. Another associated issue is about to what extent (inter)actions can be controlled. Is it about coordinative governance, shared governance or self-governance? Governments are challenged to fulfill a more modest role and participate in or facilitate the initiatives of others. A broader interpretation of democracy seems necessary, which is not only about talking in public arenas, but also about acting in personal and spontaneous arenas. And hence more adaptive approaches responsive to the dynamics of society not in guiding what “is”, but in guiding a process of “becoming”.

The most obvious fact is that governmental, business and civic actors grow more toward each other. It is harder to distinct separate roles and responsibilities. The separations between sectors, domains, worlds and institutions become more fluid. The boundaries that we draw might not be solid boundaries and far more “dotted lines”. Why suggest sharp distinctions for what in reality is connected? Just like the philosopher David Bohm already said, drawing boundaries stimulates fragmentation, while an integrative perspective opens up new ways of thinking and acting. Consumers can, for example, also be seen as producers, citizens as entrepreneurs, electors as politicians, citizens as policy-makers, employees as employers and volunteers as professionals. The above concepts and labels visualize our search for new combinations of public, private and social efforts in an increasingly complex and interrelated society. Most new words and terms are combinations and comprise at least features of two and sometimes all three worlds. Arts and Van Tatenhove (2004) also describe that we are moving away from a situation, with a sharp distinction between state, civil and market, to contemporary societies that show increasing encroachment, interweaving and interference of the three subsystems, and where the demarcation lines are rather vague (Zuidema 2011). The boundaries that we draw are at most temporary boundaries that can be adjusted and moved into new frontiers over time or become permeable.

The three worlds can be conflicting and might stimulate the reflex to hide behind demarcation lines, but working together makes it possible to achieve more than any one sector could achieve on its own. They are less capable of reaching their ambitions independently. The different worlds can be brought together in coalitions that are effective, not in spite of, but due to the differences. Therefore grating and clashing will both be inherent and necessary to achieve ambitions. Governmental, business and civic actors all have their own role to play, but our search is for new interactions, and interrelated roles, responsibilities and rules of working together (see Figure 12.1). The three

FIGURE 12.1

A new interplay between governmental, business and civic actors.



worlds are not communicating vessels. When civilians take initiatives, this does not automatically implicate a withdrawal of the government and business sector (see also Tonkens et al, 2015). It's about a combination of "street life", the "marketplace" and the "public domain". And in doing so we also have to break through some traditional images. Civilians are not only consumers merely concerned with their personal well-being, companies are not only commercial, striving for the biggest profit and the government is not the only entity that knows what is best for the people. In line with this, Sampson et al. (2005) describe not only the increase of civil initiatives, but also the importance of the density of non-profit organizations (NGO's), and thus the traditional social capital, for collective actions. An actualization of roles and images is needed. The public sector takes care of the legality and legitimacy and asks itself the question: How can we (support others to) make responsible choices? The private sector stands for efficiency and effectiveness and raises the question: How can we make it profitable (and valuable)? The social sector strives for attention and satisfaction to stimulate people's own strengths and empower them to be in control of their own lives and conditions. This sector is committed to the question: How can we actually (understand and) help people?

The three worlds all bring relevant values and questions with them. The government could set long-term ambitions and frames stimulated by the public. The business sector could come up with business models that take more values into account than only money; civic society could take initiatives based on local knowledge, experience and networks that go further than the citizen's personal gain and backyard. Three worlds that are fit to create public values and in which society is, just as the other two worlds, able to produce goods and services

in complex situations. Together they are able to arrive at better solutions for complex problems than they can achieve on their own. Innes (2016) emphasizes after decades of research on collaborative processes the necessity to bring multiple perspectives and values together to not only break through stalemates, but also produce creative solutions for complex and controversial problems. The ability to collaborate could therefore be seen as a “license to operate”. The question is not: Will they need each other, but, rather, who will take initiative; governmental authorities, social or business organizations or individual civilians or entrepreneurs?

The new interplay is not only about a government that tries to transfer public value to the market and society through privatization and participation, but also about a bottom-up movement in which people implement, unsolicited, public values on their own conditions, and standards in their own interest, out of frustration or motivation (see also Van der Steen, 2013). The term “collaborative governance” (Ansell and Gash, 2008; Emerson et al., 2012) has emerged as a response to the failures of downstream implementation and to the high cost and politicization of regulation. It is used as a broader analytic concept that engages governmental and non-governmental actors. Also the term “governance networks” (Van Meerkerk, 2015) refers to the relationships and growing mutual interdependencies between actors in contemporary society. “They could mobilize additional resources, improve the quality of policy- and decision-making in terms of a more integrated approach to these issues, develop more innovative solutions and improve the coordination between interdependent actors” (Van Meerkerk, 2015). Hajer (2003) states that more than in the past, solutions for pressing problems cannot be found within the borders of sovereign polities. As established institutional arrangements often lack the power and authority to deliver the required or requested policy results on their own, they can take part in polycentric networks of governance in which power is dispersed.

Here we choose the term “coalitions” to underline the idea that every actor (governmental, business or civic and institutional or individual) can take initiative, every actor has something valuable to contribute and every actor can fulfill similar roles and responsibilities depending on the situation. In the one situation a social entrepreneur is leading a civic community to stimulate employment of disabled people, being facilitated by a governmental authority and commercial company and in another situation the same governmental authority is leading a project on public transportation with the company and individual entrepreneur as stakeholders. In this constantly changing interplay the traditional ways of working are still relevant, but are supplemented by new ways. Next to the challenge of new ways of working, we therefore also have to reevaluate institutional ways of working and reevaluate the role of governments and public officials (see also Tonkens et al., 2015; Van der Steen et al., 2015). On



top of this we have to develop a greater contextual alertness to judge and discuss situations and suitable coalitional approaches. Coalition planners can have a bridging and guiding role in working on the interface of established institutions and individual aspirations.

### COALITION PLANNERS: *WORKING ON THE INTERFACE*

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>> Working in coalitions has immediate consequences for the role and the playing field of urban planners. It means that urban planners need to have the ability to thoroughly understand and link the manners and morals of governmental actors, as well as business and civic actors, in such a way that their particular values cumulate in urban developments. In the past decades in the Netherlands, just as in any other country in northwest Europe, urban planning and development became a dominant task of the government with corresponding managerial and financial mechanisms. The government knew what was best for the public, made plans in line with those interests, purchased the needed land and carried out projects. This was seen as a logical response to the heavy task after World War II of providing houses and jobs for everyone. Since the 1980s the centre of gravity has moved to the market, because a dominant government was seen as too inefficient and inflexible to react to changing economic situations (Council for the Environment and Infrastructure, 2014). Societal movements, demographic developments and the economic crisis also put pressure on this way of working and the market's model of earning. The Innovation program NederlandBovenWater (2012) and Platform31 (2014) reflect, in their reports, on this totally reversed chain of the planning process from top down planned decisions to adaptive approaches based on local needs. Through the years the emphasis on the different worlds has changed; the necessity to link governmental, business and civic actors has, however, always been an important, but also difficult, issue in planning.

Boelens (2010) explains that planners have always been governmentally focused, in practice as well as in theory, and have worked from an inside-outward perspective. "In this way new relational planning proposals also stay within the path-dependencies of the government, tending towards their own public-oriented problem definitions, focusing on internal time-consuming coordination processes, interaction overkill, mainly oriented to vote-winning and mostly resulting in less creative and less innovative middle-of-the-road solutions" (Boelens, 2010: p35). Boelens argues that the new development-oriented way of planning, which was seen as an answer to the downsides of the governmentally focused permission-oriented planning, is still being considered as part of the existing government-driven planning framework. Working outside-inward as well, starting from the energy in the market and society instead of seeing one's own policies as a starting-point, is therefore, according

to Boelens (2010), a larger change than we can imagine. But also a necessary change: “If change is happening faster on the outside than on the inside, the end is in sight” (Gray 2012). With this quotation in mind, it is not surprising that innovation often takes place on the border where both the “inside” and the “outside” and different cultures, disciplines, interests and perspectives meet.

It might go too far to perceive this as a “grenzsituation” (“limit situation”) in the words of the German philosopher Karl Jaspers (1919), but his idea of being in unusual situations in which the usual means and measures are inadequate to overcome the situation is similar. According to Jaspers, in these situations the human mind confronts the restrictions and pathological narrowness of its existing forms, and allows itself to abandon the securities of its limitedness. Because of this, it enters a new realm of self-consciousness to seek higher or more reflected modes of knowledge. Karl argued that the freedom of consciousness to overcome its limits and antinomies can only be elaborated through intensely engaged communication with other persons, and in which committed communication helps to suspend the prejudices and fixed attitudes of consciousness. In this respect, actors quite often start formulating solutions for other actors from their own perspectives within their institutional boundaries without critically reflecting on and communicating about their own role and the expected role of other actors. When actors move to the interface where boundaries meet, they create a “grenzsituation” in which they can broaden their views and attitudes and stay away from their reflexes and path dependencies. Actors will experience more space to come up with innovative and creative solutions, and to openly consider the different roles of actors involved.

It is exactly at this boundary where we position urban planners: on the interface of the inside and the outside and of established institutions and individual aspirations (De Jong, 2015, Krul-Seen and De Jong, 2015). What actors perceive as “inside” or “outside” and whether there is a (sharp) distinction between both depends on the nature of relationships and reciprocal mechanisms across this interface. Coalition planners consider this dynamic interface as their playing field. They work with one leg in their own institutional context and one leg in coalitions of different actors involved (see Figure 12.2). Sometimes demarcating the boundaries between the “inside” and “outside” or between “institutional” and “individual”, and sometimes moving and tarnishing these boundaries. We therefore call them coalition planners, since they work in a multi-party environment and have the ability to understand and link the different interests and motivate groups to achieve more together than on their own. Coalition planners are also often referred to as best persons (Brink et al., 2012), brokers (Gray, 2008), mediators (Susskind, 2008), Webbers (Roobeek, 2007) or boundary spanners (Cross, Ernst and Pasmore, 2013; Van Meerkerk, 2014). Richardson and Tait (2010) use the term “neo-expert”. Neo-experts are not the source of the

**FIGURE 12.2**  
The playing field of the coalition  
planner.



relevant domain specific knowledge; they bring together the “expertise” of the many actors involved. Whereas (modernist) “experts” do our thinking for us, the “neo-expert” helps us think for ourselves. Neo-experts focus on the transfer of skills, knowledge and rationalities, and the creation of new successful patterns. In order to guide coalitions, planners have to be aware of their role and their use of expertise. They stimulate joint knowledge production by bringing in the relevant domain specific knowledge, on the one hand, and by being open-minded on the other. The task of coalition planners is to work both inside-outward and outside-inward. They bridge the institutional context of their own organization (inside) and the external dynamics in coalitions (outside) in such a way as to reinforce each other instead of constraining or threatening each other.

Because there are no general bridging approaches on the interface, the personal behavior, attitude and values of the coalition planner will determine the effectiveness of the coalition process and the use of methods and tools. A coalition planner quite often has no clear hierarchical position in his or her own organization. He or she cannot regard the ways of working of his or her own organization as leading, and will have to search for a joint language, approach and manners. Not an easy job, since every organization has its own history, culture, way of working, pace of working, style and interests. The presence of dilemmas is characteristic for the position on the interface. According to Gray (2008), working across organizational boundaries is difficult and there are institutional disincentives and bureaucratic systems that obstruct collaboration. Boelens (2010) also observed these disincentives for planners, because their repertoire of actions and vocabulary are embedded in institutions and formulated within the existing planning-framework. Yet they are confronted with individual initiatives from the dynamics within a civil and critical society.

Lewis and Smith (2014) define these kinds of paradoxes as “contradictory yet interrelated elements that exist simultaneously and persist over time”. De Caluwé (2015) describes five appearances for dealing with paradoxes. The first manifestation is that you don’t see or experience the paradox. Your world is clear-cut, well-organized and you know what to do. In the second manifestation, you notice the paradox. You feel discomfort and are inclined to hide behind the demarcation line of your own institutional world. In the third stage you perceive the paradox as a choice between two conflicting poles. If you choose the one, you will lose the other. The fourth manifestation is that you experience the paradox as contrasting values and you realize that by choosing one value you won’t get closer to a solution. You can’t have one without the other. You try to manoeuvre and navigate between the values and differ in your approach and role in time, place and situation. The fifth and last manifestation is embracing the paradox by searching for new insights that incorporate both values and accepting that discomfort is part of the deal.

Lewis and Smith (2014) also write about embracing the paradox and value both ends. They state that “researchers have long responded using a contingency theory, asking ‘under what conditions should managers emphasize either A or B?’” Yet increasingly, studies apply a paradox perspective, shifting the question to “How can we engage both A and B simultaneously?” (2014; p127). They plea for a mind shift from “either/or”-perspectives to “both/and”-perspectives. For coalition planners that have to deal with contrasting values between governmental, business and civic actors and between established institutions and individual aspirations. This means that they have to search for repertoires of intervention that invest in both sides of the coin. As we already discussed in previous sections on the terms and labels used in this interrelated society, they will have to invest in economic and social perspectives, in civil and professional initiatives and in both the representative democracy and the direct democracy. In order to bridge these worlds and values, coalition planners will have to develop additional languages, interventions and competencies to guide a coalition process. And they will especially have to develop a situational awareness, a contextual alertness and a sense of timing to evoke and respond to changing situations. In the following sections three different types of coalitions are distinguished to guide the interplay of governmental, civic and business actors at the interface. These coalitions can be placed on a spectrum that explains the characteristics of the different coalitions, the matching approaches and their progression in time.

### COALITIONS ON A SPECTRUM: *DIFFERENT RATIONALITIES*

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>> The above-described trends and concepts lead to an understanding of the contemporary world as a complex, plural and interrelated society with assertive,

emancipated and entrepreneurial citizens. In order to realize ambitions in this context we interact across boundaries to bring together multiple perspectives in coalitions. At the beginning of this chapter, a coalition was defined by five key elements: ambitions, actors, arenas, actions and arrangements. It is a group of diverse and autonomous actors (organizations or individuals) that associate around ambitions in a public arena to develop a repertoire of actions and arrangements. The addition of the words “diverse” and “autonomous” is important, because here we don’t describe the collaboration of professionals in teams or departments within a (hierarchical) organization that function under the same systems and mechanisms. Coalition planners therefore often don’t have a formal position in one organization and have a role on the interface of established institutions and individual aspirations. They are process managers in a multiparty environment who have the ability to understand and link the different interests and motivate groups to achieve more together than on their own. By working in coalitions across boundaries different values and rationalities are confronted, combined and interwoven. Specific rationalities apply within boundaries, but also by working more and more across boundaries, we can develop popular rationalities about governance approaches.

Rationality is a reasoned and deliberate way of thinking and working that can be explained to others. De Roo (2003) has built a framework for planning-oriented action using a spectrum of rationality between instrumental (also referred to as technical, functional or procedural) rationality at the one end and communicative rationality at the other. The ends correspond with the perceived degree of complexity – from simple, via complex to very complex. This proceeds from single and fixed goals and fully centralized structures (often associated with formalized, hierarchic and bureaucratic structures) to multiple composite and dependent goals, and decentralized structures (often associated with informal, horizontal, organic and interactive networks). In this complex perceived world the communicative rationality has become more dominant in the past years (Healey, 1997 and 2003; Innes, 2016). The more we work in complex collaborative settings, the greater the need to also differentiate in these ways of working and to add ways that are not necessarily initiated by the government. Next to and partially overlapping with the spectrum of De Roo (2003) about an administrative or governmental world on goal-oriented action, decision-oriented-action and institution-oriented action, we see new developments in which roles, rules and responsibilities are more diverse and expressed in different coalitions. Sometimes defined and demarcated by one institutional actor, sometimes shared and created by more actors and sometimes evolved and explored by individual actors. The interplay of these different, but related, actors in different coalitions makes us assume that there could also be a “spectrum of coalitions”. A spectrum that contextualizes and analyzes the ways of working together on the interface of established institutions and individual aspirations. A spectrum that meets the institutional



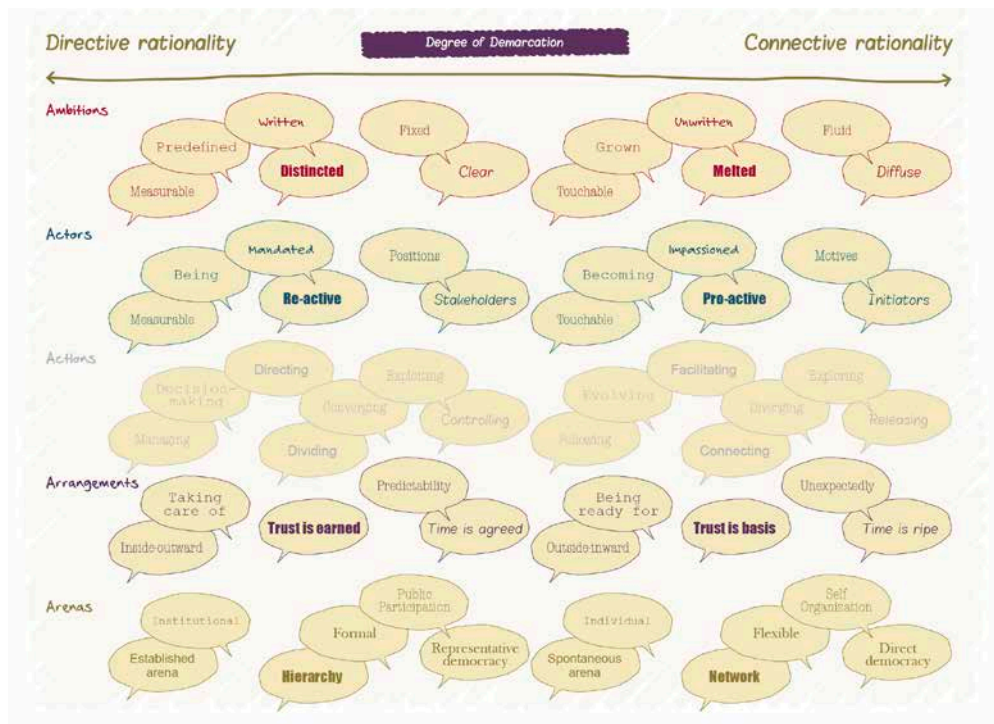
spectrum of De Roo when it comes to more directive ways of working, but adds new collective and connective ways of working.

The spectrum of coalitions also uses the perceived degree of complexity as an informant for choices between various coalitional approaches. Zuidema (2011) gives an overview of many studies within planning, policy science and in contingency research that use the degree of complexity to categorize differences in contextual circumstances and corresponding organizational structures and strategies. Contingency theory is “the idea that the decision in favor of an approach or strategy in a given situation should be contingent upon the circumstances of the situation” (Zuidema, 2011, p. 11). This theory assumes that it is possible to objectively derive knowledge from contextual circumstances and translate this into changes in governance approaches and organizational configurations. As described in this chapter, in working across boundaries there are no universal rationalities or objective truths, let alone a commonly understood language of describing circumstances and implications for approaches. Zuidema therefore came up with a reframing of contingency into a post-contingency approach to be able to navigate the plural governance landscape. In this approach complexity is not only a matter of degree, but also a matter of choice of what is “real” and “rational”. Furthermore, Zuidema notes the reflex of “whatever people believe to be an appropriate approach” (2011, p12), but states that not all organizational formats are equally well-suited to performing certain functional ambitions.

We are concerned here not only about the interpretation of the situation and perceived complexity, but also about the perception of others and the values and preferences that influence the choice of approach. Hendriks (2005), for example, introduces participatory storylines as narratives that circulate around an issue on who constitutes “the public” and whether “the public” should participate in the policy process. In her view, the productivity of approaches also depends on their affinity with existing democratic understandings. Van der Steen et al. (2015) call this a distortion of the process of choice, because current (institutional) ways of working might prevent actors from choosing new ways. They specify next to technical considerations and considerations about the content, also normative considerations (beliefs, values and preferences) for choosing an appropriate approach. Zuidema shows that “the choice in favor of a governance approach is informed, but not dictated, by the perceived degree of complexity” (2011, p89). When it comes to working on the interface of established institutions and individual inspirations the degree of complexity is hard to recognize and interpretations or choices are likely to differ per actor.

Considering the above described trends in an interrelated world towards a new interplay with more fluid boundaries, we regard the degree of demarcation both as an informant and outcome of choices between coalitional approaches. The

**FIGURE 12.3**  
Defining the ends of the  
coalition spectrum.



clearer and more distinct demarcation lines are perceived, the easier ambitions, actors, actions, arrangements and arenas are (pre-)defined and the easier it seems to give direction to the coalition. This approach strengthens and confirms the perception of clear demarcation lines. The more diffuse and melted demarcation lines are, the more ambitions, actors, actions, arrangements and arenas need to grow and evolve. The more difficult it is to come up with directives and the more ideas and connections need to be explored in a coalitional process of becoming. Again, this approach reinforces the perception of rather vague demarcation lines. For the spectrum of coalitions let us therefore define the first end of the spectrum as a “directive way of thinking and working” or “directive rationality”. We consider the second end of the spectrum as a “connective way of thinking and working” or “connective rationality” (see Figure 12.3).

In the past decades we have developed different languages and approaches for the directive way of working inside-outward in an established (policy) arena focused on decision-making in a representative democracy (Fischer and Ury, 1991; Hajer, 2003; De Roo, 2003; Innes and Booher, 2004; Susskind, 2008; De Jong, 2009; Boelens, 2010; Zuidema, 2011). It is literally and figuratively a better “written” way of working: many theories and publications relate to it, but it is also a way of working in which predefined ambitions, mandated actors, controlled actions, predictability and institutional arrangements are important. Because there are relatively clearer demarcation lines, a clear division of roles and responsibilities is both easier and necessary. The connective way of working

has always been present; it might even be closer to the human nature, but has only recently become a popular field of study (Sampson et al., 2005; Brafman and Beckstrom, 2006; Roobeek, 2007; Boelens and Boonstra, 2011; Boutellier, 2011; Specht, 2012; Bakker et al., 2012; Gray, 2012; Innes and Rongerude, 2013; Van der Steen et al., 2014; Rauws, 2015; Tonkens et al., 2015). This connective way is literally a way of working that is harder to write about in a general sense that does explain individual practices and will figuratively always remain an “unwritten” approach with hardly anything predefined. It is a way of working outside-inward with growing ambitions, passionate actors, exploring and facilitating actions and individual arrangements in a spontaneous arena based on direct democracy. Because there are no clear demarcations, all actors are assertive and the division of roles and responsibilities are diffuse and changeable.

### A BLENDED COALITIONAL APPROACH: *THREE FRAMES OF WORKING*

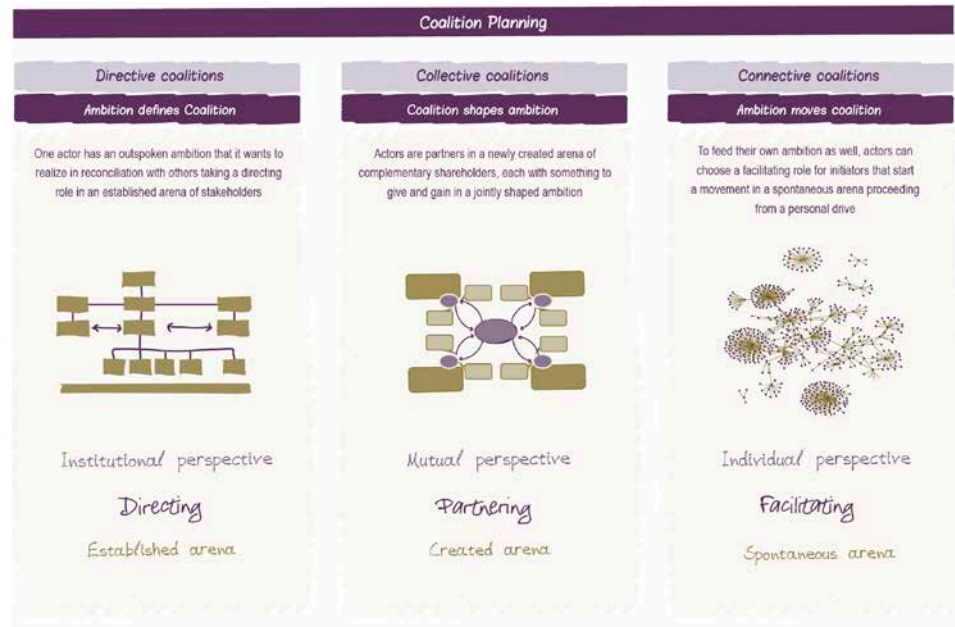
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>> Both ends of the spectrum correspond to directive and connective coalitions, but being a spectrum allows a way of working in-between, corresponding to another already introduced, though sometimes forgotten, theoretical and practical perspective on shared governance and new collectives (Moss Kanter, 1994; Lawrence et al., 2002; Innes and Booher, 2003; Healey, 2003; Gauthier, 2006; Connelly, 2007; Ansell and Gash, 2008; Gray, 2008; Emerson et al., 2012; Kaats and Opheij, 2012; Blekemolen and De Jong, 2015). These three types of coalitions (De Jong, 2015) can be distinguished and placed on the spectrum (see Figure 12.4):

- Directive coalitions: One actor has an outspoken ambition that it wants to realize in reconciliation with others taking a directing role in an established arena of stakeholders;
- Collective coalitions: Actors are partners in a newly created arena of complementary shareholders that each have something to give and gain in a jointly shaped ambition;
- Connective coalitions: To feed their own ambitions as well, actors can choose a facilitating role for initiators that start a movement in a spontaneous arena proceeding from a personal drive.

All three coalitions, to be shortly described in the following sections, differ substantively. Together they introduce a framework and language enabling actors to make deliberate and explicit choices in coalitional approaches with possible repertoires of actions to guide the new interplay between business, civic and governmental actors. As stated previously, each type of coalition needs an ambition as the fuel, glue or driving force of the coalition. Although approaches should be tailor-made, two ingredients are important in every coalition to realize ambitions: “interacting” and “meaning-making” (Hajer et al.,

**FIGURE 12.4**  
The Spectrum of Coalitions at  
a glance.



2010; Susskind, 2008). Interacting is about values, desires, interests, emotions, relations, dealing and conflicts. Meaning-making is about knowledge, creativity, experience, visioning, learning and designing. Guiding a coalition is about combining interventions concerning the process (interacting) and the content (meaning-making). The way these are combined differs per type of coalition. Actors working in collective and connective coalitions are no less ambitious than actors choosing a directing role in directive coalitions. Their ambitions are just expressed differently and are less pre-defined with regard to the outcomes and way to achieve them. Coalition planners in directive coalitions use results and time as main steering mechanisms, in collective coalitions the process of collaboration and in connective coalitions the conditions under which energy flows.

Using the spectrum, what would be the most suitable type of coalition for dealing with the surplus of vacant office spaces and sites waiting for development? One could say that the government should have a directing role, because the problem is too urgent to be ignored and the public interest is not met by the property owners. This approach could work if the governmental authority has the means to demarcate roles and responsibilities. One could also state that there is not one problem holder, but many. All parties should work on a joint solution in a collective coalition, all as equal shareholders and all feeling responsible and committed. This approach could work when all partners involved share their rationalities and responsibilities, and perceive and make demarcation lines overlap. Or one could say that this problem needs a radically different approach, because it cannot be solved by the system that created the problem. Therefore what is needed are bottom-up and perhaps temporary

initiatives arising from a connective coalition and possibly a facilitating role of the government. This approach could work when initiators and (governmental) institutions see no demarcation lines in their roles and responsibilities that prevent them from being pro-active. All three coalition types are able to offer solutions and one type of coalition is not necessarily better than the other.

However, we do see a shift in current spatial planning practices. We experience a move away from the traditional way of fixing and securing every step of the plan that has to be taken to reduce risks and uncertainties. Boonstra and Boelens (2011) consider the shift “from an approach based on averages to an approach based on differences; from an approach based on generic aspects (such as instruments and indicators) to an approach based on the specific; from an approach based on planned and measurable outcomes to an approach based on unexpected, unplanned and unforeseen outcomes; from an approach based on the reduction of complexities and stabilization of dynamics to an approach based on the embracing of complexity and the process of “becoming”. Also, Zuidema (2011) writes about the shifts in governance. He states that “most of the Western governments are currently involved in governance renewal operations to move away from a reliance on the coordinative model of governance and its associated central government control. The coordinative model is increasingly seen to be incompatible with the challenges of our complex and plural societies” (2011, p225). The three frames could therefore also be interpreted as “belief systems” by different actors on how to reach ambitions and work together. Zuidema pleads for a reconsideration of the benefits of the coordinative governance model along with the increasingly popular collaborative and communicative rational approaches. He sees it as a crucial foundation on which to build new dynamic approaches. Here we can also state that the more familiar, directing roles and approaches are not disappearing; however, more partnering and facilitating roles are added.

The above example of finding an approach to the problem of the surplus of vacant office spaces illustrates that (governmental) institutions can work in different coalitions in different roles. For this reason, they must have separate repositories of action available for all three types of coalitions. In addition, coalitions are dynamic entities that can change over time: new parties might enter the stage, rationalities might move in each other's direction, political elections might change the direction, etc. Switching to another type of coalition could therefore be an unforeseen consequence of the course of the process in order to respond to changes. Or it could be a strategy aimed for, when it is a political desire to move away from directing roles to more partnering roles, for example. Furthermore, even a combination of all three types simultaneously might be effective. In the example of the vacant office spaces we could choose for a combination of new governmental legislation made in reconciliation with stakeholders, a deal among property owners and temporary pop-up initiatives.



Van der Steen et al. (2015) specify four modes of governmental governance approaches: public administration, new public management, network governance and societal resilience. Just as Zuidema (2011), they consider the first two modes as a basis for the other two and introduce a “sedimentation” of governance modes: a plural perspective in which elements of the different approaches can be combined and applied simultaneously. This multiplicity of roles and approaches demands a broader view on competences and repertoire of interventions, where all ways are seen as being equal and are considered as additional options. For example a governmental authority could also be a stakeholder or partner in initiatives of others, while being a director on other aspects of the same ambition. Here we promote the same way of dealing with the three types of coalitions, mixing and blending them in a suitable coalitional approach.

Assembling such an approach is, according to Van der Steen et al. (2015), an open consideration, but has to be made deliberately and preferably at the start of a coalition process. Actors too must impart to parties involved a clear understanding of when they are playing in what role: director, stakeholder, partner, initiator or facilitator. Dissimilar expectations or a confusion of tongues about the coalitional approach can lead to counterproductive behavior with frustration and disappointments as a result. Sometimes an accurate diagnosis of the situation for choosing an approach is clouded by institutional compelling systems and reflexes. And quite often the approach evolves gradually; in this case, it is important to make a time switch and discuss the change explicitly. In adaptive approaches timing is crucial and coalitions develop their own rhythm. The three coalitions will be briefly described below on the basis of a common view and language as separate frames of working, with corresponding rationalities, roles, rules, repertoires and responsibilities. Each type of coalition could be applied to a specific field of research; see the description below as an exploratory narrative and overview.

### **DIRECTIVE COALITIONS: AMBITION DEFINES COALITION**

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>> Directive coalitions are positioned on the left side of the spectrum. One organization has usually already set out a problem definition or possible solutions, and feels the urgency to achieve results. The leading party, for example, a ministry, municipality or housing corporation plays a directing role. Their ambition has an impact on others outside their organization. The ambition of the director therefore defines what stakeholders are invited to form a coalition. This coalition is fairly formal and characterized by the hierarchy between the parties. The position of a municipality, health institution or energy company is often stronger than the position of stakeholders like citizens, patients, clients and other stakeholder groups. The process is pre-

defined and has clearly formulated deadlines and moments of decision and participation. Ownership is not shared and the director considers the different interests, defines the direction and makes the final decisions. Demarcation lines and the division of roles and responsibilities are rather clear. This type of coalition is suitable for projects that are desired by the government or a specific organization that can provide most of the required funding and other means. The construction of new pipelines transporting heat, the widening of a road or the rebuilding of office headquarters are often projects carried out in this type of coalition. These types of coalitions are nowadays most common in urban planning. De Jong (2009) and Project committee Faster & Better (2010) have published evaluations of more than 40 of these coalitions by the actors, external experts and social leaders involved. Directive ways of working cannot be seen as “old”, “old-fashioned” or “outdated” and are still of use in this interrelated society, although boundaries are rather adjacent than overlapping or melting.

The main orientation directive coalitions is institutional. This type of coalition is useful for achieving outspoken ambitions within certain frames; however, the cooperation of others is required to speed up or improve the realization of the ambition. The key question for the directing organization is therefore: “How can I realize the ambition of my organization by involving stakeholders?”. For the involved stakeholders the main question is rather: “Do I have more influence when I am participating in the coalition?”. Governmental authorities do not necessarily have to fulfill the directing role, they can also be a stakeholder or even a facilitator, for example when an energy company plays a directing role in constructing a new pipeline for the transportation of heat. This type of coalition is mostly situated in a formal and political context, and where power-relations between parties influence the process. The aim is to come to transparent and supported decision-making. Political pressure can be very useful to emphasize the urgency in finding a solution. Words like mandate, planning, position, local support, authority, participation, plan, directives, representation, compensation and regulations are often heard. Predictability is important to be able to plan the process, reduce risks and manage the expectations. Time is an agreement and predefined results and deadlines form the measuring stick. Being in control, having an overview, putting things on paper, representing one’s organization and working according the guidelines are important factors. One has to be in position or mandated to act in this type of coalition. If this is not the case, one has to acquire position and know one’s place in the hierarchy.

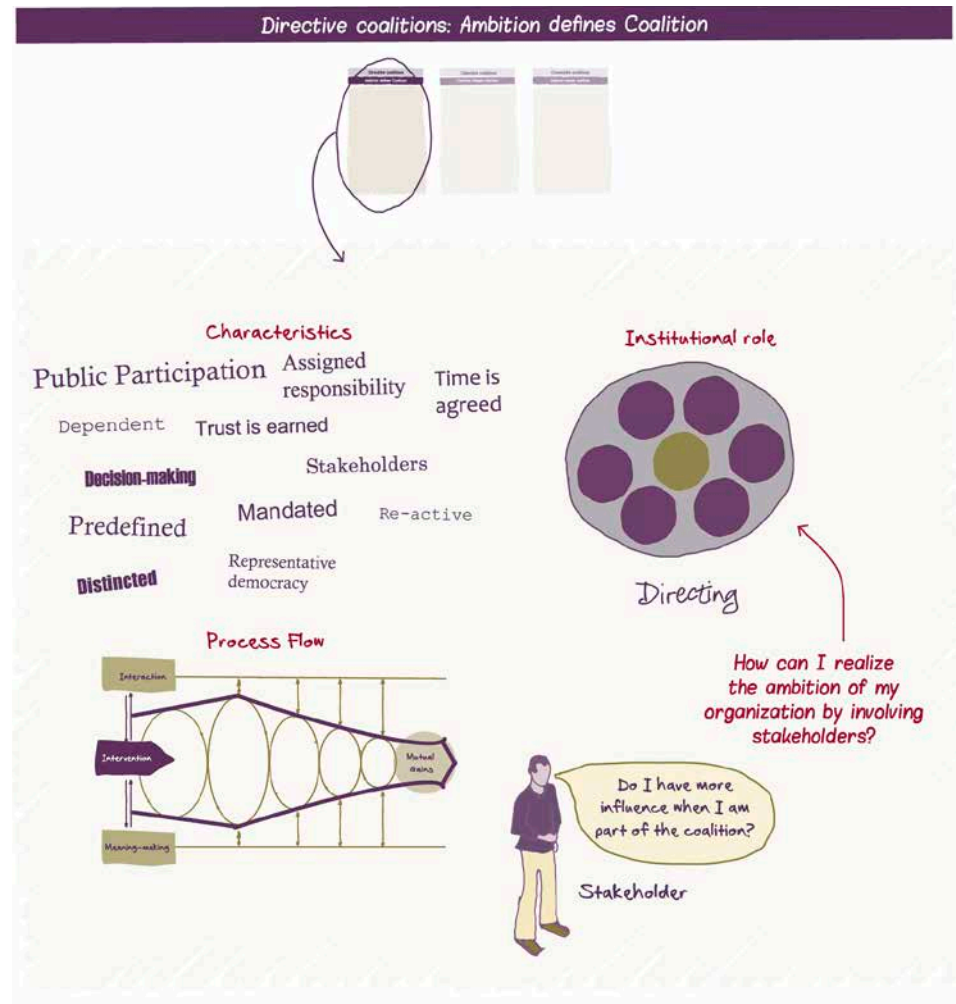
Next to decisiveness, transparency is a factor of success, but hard to put in practice, since this is not always favorable for the strategic position of the involved parties. Scholtes (2012) shows why transparency became such a popular term in the governmental context in the last 15 years and how politicians can use this ambiguous and flexible term to make a sensible impression and at the same time mask their political objectives. Considering

the aim of directive coalitions, a common pitfall is procrastinating the solution: buying time to come to an agreement later. Making mistakes should be prevented and halting the process before reaching a final decision is in many cases taken up as failing. Another pitfall is compromising for strategic reasons without solving the actual problem and not investing in the added value of the parties. The challenge is to reach consensus: a solution in which every stakeholder sees the added value when compared to the present or undesirable future outcome. In this coalition parties mainly focus on converging and funneling, since they are working towards a final product or decision. Especially in these decision-making and negotiating coalitions the Mutual Gain Approach can be very useful. As early as 1999, Fisher and Ury came up with an alternative for positional bargaining. Their approach is founded on four basic elements: separate the people from the problem, focus on interests instead of positions, generate a variety of possibilities before deciding what to do and insist that the result is based on objective standards.

Susskind (2008) translated this into an approach for negotiating in planning processes. While this type of coalition is mainly focusing on converging, Susskind states that it is crucial to first diverge before converging and to first create value before distributing it. When actors first diverge they become more creative, and can achieve possibly better outcomes and values. The risk of overlooking ideas, perspectives, solutions and parties is lower, since they have explored the whole with a broader view. If actors don't diverge before converging chances are high that they will have to start over again, because they have missed essential information or parties. If actors start distributing the value, before creating it, they are too soon in the stage of negotiation. Chances are high that conflicts will arise. If actors invent options and make the cake bigger, there is more to distribute, which means that package deals can be made. This way it is much more likely that the coalition comes to mutual gains and discovers a window of opportunity in different rounds, where the problem or opportunity is matched with an outcome and support for both (Kingdon, 2002). The above described characteristics and process flow is illustrated in Figure 12.5.

Usually in directive coalitions the formal institutional processes and procedures are dominant. Actors often communicate with each other in a written language and don't trust each other beforehand. They need to constantly prove and earn the trust of others. In this context actors tend to think linearly in terms of steering boards and milestones, while effective coalitional processes also need time, trust, good relationships and the right chemistry (De Jong, 2009). The project committee Faster & Better (2010) comes to the conclusion that it helps to invest in relationships right at the start, to be able to take advantage of this in a later stage of the process. The role of the coalition planner in this type of coalitions can be executed by the stakeholder manager, project manager, communications consultant or the mediator. Possible interventions for the

**FIGURE 12.5**  
Characteristics of directive  
coalitions.



coalition planner are making issue- and stakeholder analysis, providing insights by using cost-benefit analysis, setting the agenda, risk management, finding the right representatives of the involved organizations, setting up frameworks and protocols, adding values by making the cake bigger, creating objective criteria, mediating in conflicts, constructing package deals and compensating parties in their interest, etc. Although Project Management and Program Management are tools which are quite professionalized nowadays (see also Mulder (2014), who introduced Value-Based Project Management) we can still make progress in these coalitions with good negotiation strategies and stakeholder management. Using many examples of Dutch spatial projects, Evers (Evers and Susskind, 2009) shows that mutual gains are possible.

### COLLECTIVE COALITIONS: COALITION SHAPES AMBITION

>> In the second type of coalitions, actors have found each other in their common view on the future or common pressing issue. Together they shape a

collective ambition. For every organization or person there is both something to gain from and something to bring to the table. All actors can be considered as equal partners, so we do not talk about stakeholders (as in directive coalitions), but about shareholders. They each consider themselves as owner of the ambition and coalition. Each actor has its own role and makes its own contribution to the coalition. Actors that do not see advantages in being a partner will not participate. The actors create a new arena with partners that want to join forces and not because they are forcibly committed to each other (like they often are in a directive coalition). It takes time and effort to let the common ambition grow, but it makes a sustainable way of collaborating possible. This type of coalition is effective when the parties are interdependent in reaching their goals and no single party has the power to work on their own, for example, when parties want to decrease traffic jams or stimulate the economic development of a region. This type of coalition is oriented to collectives: not the separate institutional or individual perspectives, but the mutual perspective is at the heart of this coalition type. Organizations or individuals have to give up (a part of) their autonomy, trusting to get more in return by operating as a collective. Therefore demarcation lines between actors are overlapping. The key question is “how can I be stronger together with partners to make our ambition come true?”. The reasons for searching for partners can vary: e.g. they lowering the organizational costs, organizing more funds, dealing with political or external pressure, working more efficiently, developing innovative knowledge and skills or having more mass.

The advantage of this type of coalition is that every partner feels responsible for achieving the ambition. In urban planning this type of coalition is still rather uncommon, but will gain territory in the future. Considering the present decentralizations, cost reductions and declining legitimacy, this might become a type of coalition with opportunities for governmental organizations. When governmental authorities are not part of this coalition they can fulfill a facilitative role (see also the next section on facilitating connective coalitions). If they are part of this coalition they also have a partnering role, nothing more and nothing less than the others. Equality is difficult for governments, since they have political and jurisdictional power, and guard public interest. In this respect they are used to having a directing role. Hajer (2003) argues “that policy making now often takes place in an “institutional void” where there are no generally accepted rules and standards according to which politics is to be conducted and policy measures are to be agreed upon”. In deliberating on their ambitions, parties also negotiate on new rules, develop new norms of appropriate behavior and devise new conceptions of legitimate political intervention.

The aim is to develop a sustainable collective with a surplus value for each partner. This surplus value increases when partners are diverse and complementary. So the attractiveness of the other partner lies in the fact that

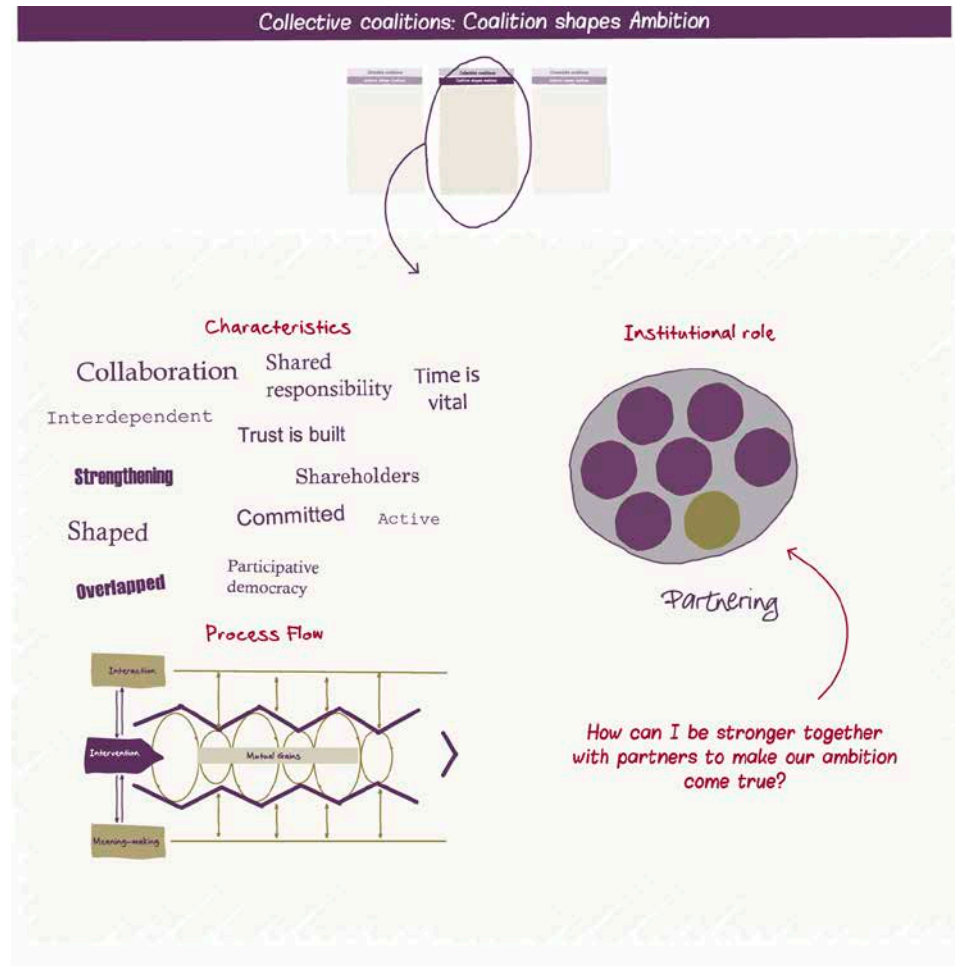


the other is different; however, it is then also difficult to understand each other. Gray (2008) opens her article with the often-daunting prospect inter-organizational partnerships face in trying to integrate their diverse perspectives and frequently competing goals. While initially intrigued by proposed alliances, partners often lose interest when the desired benefits are not quickly realized. While ostensibly pursuing a common goal, partners often espouse diverse aims that provoke difficult-to-reconcile conflicts. Competition among the partners will undermine their added value in a collaborative coalition. Consequently many partnerships succumb to collaborative inertia; that is, they experience slow progress or truncate their efforts without any tangible outcomes. Gray (2008) writes that achieving collectivity is equivalent to becoming multi-voiced. This means that the appreciation of the diversity of viewpoints that multiple parties bring to the problem has to go hand-in-hand with acceptance of the diversity in problem solutions.

Moss Kanter (1994) describes eight “I’s” that create successful “We’s”. She starts with “individual excellence” in the way that all partners are strong and have something valuable to contribute. Their motives for entering into the relationship are positive (to pursue future opportunities), not negative (to mask weakness or escape from a difficult position). “Importance” means that the relationship fits major strategic objectives. Quite often this is not the case, which causes disguise collaborations that can go on for a long time without making any progress. “Interdependence” indicates that the partners need each other and have complementary assets and skills. Neither can accomplish alone what they can together. “Investment” in order to make partners invest in each other with devotion and commitment. “Information” to make communication reasonably open. “Integration” means that the partners have to develop linkages and share ways of operating, among representatives, but also among a broader group of involved people. “Institutionalization” means that the relationship is given a formal status, with clear responsibilities and decision-making processes. Collective coalitions can therefore act as a source of change in institutional fields through the generation of “proto-institutions”: new practices, rules, and technologies that transcend a particular collaborative relationship and may become new institutional arrangements if they diffuse sufficiently (Lawrence et al., 2002). When however they merge into one institution, we no longer speak of a coalition. And finally “integrity” stands for the honorable ways that partners behave towards each other to justify and enhance mutual trust.

The coalition planner guiding this coalition can be an alliance manager, process manager or program manager, usually considered as a collaborative leader, remaining neutral without deriving their authority from their position. The interventions he or she could perform are joint fact-finding, visioning, teambuilding, gaming, communities of practice, shared strategy maps and calendars or maps of interests. The process flow as visualized in Figure 12.6 is

**FIGURE 12.6**  
Characteristics of collective  
coalitions.



a variation of diverging and converging lines adding constantly new chapters to the collaboration. Some collective coalitions are set up for a certain period of time and others have no endpoint. It is important to evaluate at several moments in time to check if the coalition is still vital. After a while parties tend to pay less attention to their common ambition and focus on the means to achieve it. Sinek (2009) writes that the “why” fades away after a while, but keeping it lively helps to fulfill the “what” and “how”. Blekemolen and De Jong (2015) have categorized ten factors of success to give equal attention to “why”, “what” and “how” in collective coalitions. When collective coalitions score badly on “why-factors” they might have different images of the ambition and what they stand for as a collective. Or there might be an imbalance in the contribution of each partner. Are they each still valuable and complementary to each other? This might lead to a reconsideration of the partners involved. Coalitions scoring badly on “how-factors” might lack a professional structure and organization on how activities are undertaken and decisions made. It could also be a sign of too many organizational structures: the overload of protocols, platforms and procedures make responsibilities unclear. “What-factors” concern the outcomes of the collective coalitions. Sometimes it takes more time to achieve, but the

desired outcomes also might be too ambitious and unfeasible. The outcomes are not to be claimed by one of the partners, but to be shared and celebrated together. In a vital collective coalition the actors gradually develop a common way of thinking and working (see Kaats and Opheij (2012) for more conditions for promising collaborations). One paradox is that successful collaborations in practice are often considered as frightening to the parent organizations.

Words like paying rules, vision, accession, chains, alliance, partnership, strategy, relationship, calendar, cooperation, liaison and commitment are often used. Partners cannot openly use their power or celebrate their personal victories. One good turn deserves another and the involved parties have to try to maintain their reservoir of trust. Trust is therefore a key factor of success and there is written a lot about this crucial factor. Edelenbos and Klijn (2007) consider “trust” as a promising coordination mechanism, instead of hierarchy rules, direct supervision and detailed contracts, when organizations are horizontally related. Krackhardt (2003) writes about the strength of strong ties and the ingredients of trust. According to him, these ingredients are “interaction”, “affection” and “time”. Interaction creates the opportunity for the exchange of information, affection creates the motivation for good relationships and time gives one the experience to learn about how partners treat each other and the shared information. An open and vulnerable attitude is, on the one hand, a condition for stimulating trust, but on the other, trust is needed to behave in an open and vulnerable way. This paradox makes it hard to establish trust and good relationships. Krackhardt writes that the average (run) time people spend on building trust is often too little and that in institutional contexts interaction is often too formalized to give attention to affection. As noted previously, another difficult key factor of success is equality amongst partners. Results will be achieved not in spite of the differences, but thanks to the differences. Involved parties are therefore diverse in skills and resources and are especially not the same. Equality in their positions, however, stimulates ownership and commitment, which is crucial to achieving the shared ambition. Collaborative leadership (Gauthier, 2006; Conelly, 2007; Kaats and Opheij, 2012) is used to reduce power and status differences between the parties, insofar as this is possible, and to work from a collective power base.

### CONNECTIVE COALITIONS: AMBITION MOVES COALITION

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>> Coalitions oriented to open networks or platforms are positioned on the right-hand section of the spectrum. One or a few persons formulate an ambition and this drives and mobilizes others to join in, elaborate on it or approach it in their own way. They meet each other in a spontaneous or action arena. It is a coalition of rather close and loose relationships of constantly changing composition. It is not about collectivity, but about connectivity. In such a setting,

ideas, developments and actions may arise that no one had thought of before or had been anticipated anyhow. Innes and Rongerade state that this “connectivity is important as it allows ideas and knowledge to flow among a wide array of participants. Flexible structure allows nodes and links in the network to change in response to evolving conditions and new opportunities. Diversity among participants brings multiple skills, points of view, and experience that contribute to learning, creativity and robustness of efforts to address problems. Finally, while strong ties in networks are necessary, networks with few weak ties are handicapped because ideas spread slowly” (2013, p79).

This type of coalition represents bottom-up, local or personal initiatives that mobilize a group of people. It could be that social media help to increase and activate these groups and stimulate the openness and accessibility of connective coalitions. An example is formed by neighbors who organize small-scale activities presented on Facebook to bring the diverse groups of residents closer together (for example, [www.spaarndammerburen.nl](http://www.spaarndammerburen.nl)) or professionals from all different backgrounds that join each other once a week, out of their own motivation through announcements on LinkedIn, but without an agenda (see, for example, [www.plugdedag.nl](http://www.plugdedag.nl)). This type of coalitions are not well documented and empirical research in planning is limited (Innes and Rongerade, 2013). Because of the individual approach it is also hard to come up with general applicable theories that are recognized by the participants and contributors in connective coalitions. Connective coalitions are often started by initiators, civic entrepreneurs, social entrepreneurs or community managers. Despite the fact that the coalition belongs to everyone, these people are often the public face of and the driving force behind the coalition. Carrying out actions and making them visible are particularly important. The purpose is to set conditions to create an enterprising effective network. After all, only people who experience an atmosphere of energy and freedom will add value to this type of coalition. The members of the coalition feel ownership for their own activities, but do not share a common ambition. Initiators, therefore, are able to let go and consider any movement as an opportunity. These “leaders” cannot control what happens and grow new leaders: They mobilize, motivate and link the different participants to become agents within the complex system of their network, gathering information, acting and interacting, and, in effect, becoming the network’s distributed intelligence (Innes and Rongerade 2013).

In connective coalitions, the individual’s perspective is central. Motives are more important than jobs and positions: It is all about personal and informal relationships, in which participants act more in accordance with feeling and common sense than expertise and methodology. So, the self-governing and self-cleaning capacities of this form of coalition are big. Owing to the fact that people participate with a personal motive in mind, they challenge one another on the behavior they consider inappropriate. People who no longer feel connected may

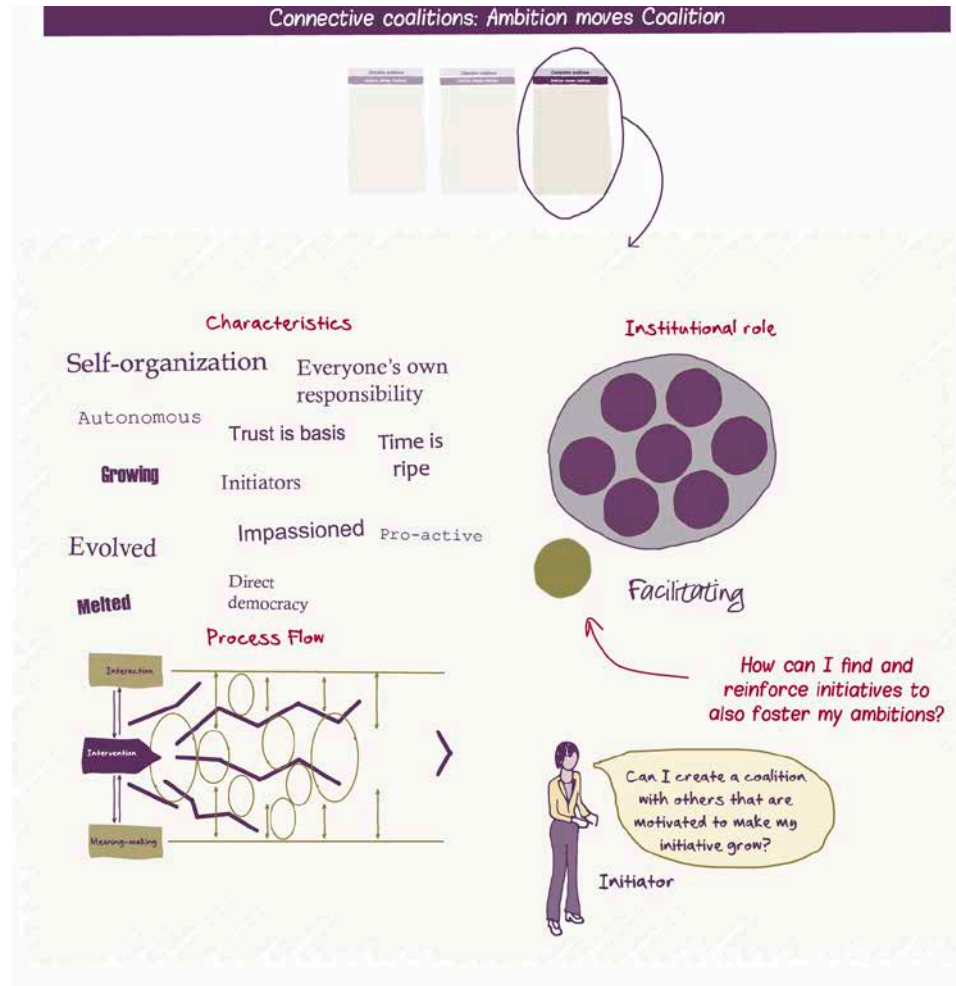
easily leave the coalition and take another path. In connective coalitions often unwritten norms and values exist. Participants are expected to be sincere and open towards others. They live for the moment with concern for one another, but are free to let each other go again. Stopping a connective coalition does not always require an explicit decision and is not considered as failing, but as a good moment to start something new. There is no course determined or shared beforehand. The next step is only taken when the time is ripe, and not because a deadline is at hand. Networks are open and do not have the collective character of second type of coalition. Everyone is allowed to participate and trust is a basic starting point that does not have to be proven or built. There are no extensive plans of approach, preliminary inquiries or planning. Some connective coalitions prefer to oppose the present systems world and resist institutional ways of working. “We don’t have this meeting-habit with lots of coffee, and written reports. We meet in the street, talk, and make a note or do things immediately”, explains one of the respondents in Bakker et al. (2012). So unlike directive coalitions, they do not focus as much on written but merely on oral language, using suitable terms like energy, hospitality, movement, germination, inspiration, helping, satisfaction, sharing, meeting and drive.

In essence, connective coalitions are directed towards divergence (see also Figure 12.7). There are hardly any boundaries, neither between people, nor ideas and neither on disciplines nor subjects. Demarcation lines are fluid and to a large extent melted; roles, rules and responsibilities differ in time, participants choose themselves if, how and when they are part of a connective coalition. Usually in connective coalitions, all sorts of contributions are possible and people’s roles and importance can change more than once. Often there are circles of involvement with a constantly changing composition. The hard core is located in the inner circle, which feels most responsible for the connective coalition as a whole. It is surrounded by a circle of people who contribute actively when it suits them. The outer circle consists of ambassadors and interested people who support the connective and believe in it. If people have more time in the short term or more affinity for the coalition, they can move inward and, if the situation changes, outward again. As connectives are often linked offline as well as online, it is fairly easy to stay informed and to become more active. Intrinsic motivation and voluntariness are important factors of success. This also carries the risk of non-commitment and cursoriness, which could result in disintegration. A connective coalition relies completely on the intentions and drives of individuals.

It is difficult to picture a connective coalition. It is next to impossible to capture it, as it is often unclear who exactly is part of it and who is not. Cilliers (2005; p.13) offers us the following description: “We have seen that there is no accurate (or rather, perfect) representation of the system which is simpler than the system itself. In building representations of open systems, we are forced to



**FIGURE 12.7**  
Characteristics of connective  
coalitions.



leave things out, and since the effects of these omissions are non-linear, we cannot predict their magnitude". For this reason, the metaphor of a swarm is often used. Although within the swarm it may appear chaotic, from a distance it reveals that it is well-organized. The other way round: it is simple for an individual to contribute, while the network as a whole operates in a intelligent manner. The value and results of connective coalitions are hard to prove and also to predict, but no less valuable. Sometimes it is more about happy faces, new contacts and warm feelings. Connectives are seeking new definitions of success to make their added value visible. Many of these coalitions are using a sharing economy and barter values interchangeably. Sometimes either no money is involved or a different currency unit is introduced, for instance, care points, which can be earned by doing one's bit for others. Crowd funding and issuing memberships are common practices too.

Established institutions can choose to play a facilitating role in this type of coalition to help them grow and overcome obstacles by providing money, expertise, capacity, contacts or media attention. Obstacles for connective

coalitions are often factors like lack of technical and legal knowledge, not enough time to perform the activities, no access to financing, restricting rules and protocols, lack of capacity, no access to other initiators, no access to media and little experience with self-organization. Governmental authorities or other institutional actors have to make a deliberate choice about whether to relate themselves to a connective coalition or not. The following quote of a project manager at the Rhine Harbor in Rotterdam illustrates that the routines of governments in taking the lead can be prevailing: “It really occurred to me how much effort it takes for a governmental organization to do nothing” (Twynstra Gudde, 2013). For organizations are more and more proactive in seeking initiatives that fit in with their policy objectives, but also regularly draw them to a halt in case of a mismatch or a perceived threat to their own existence. Meanwhile, certain organizations, for instance, local authorities, are actively creating a breeding ground in which people can launch initiatives more easily. Intervening in connective coalitions could also have contra productive or destructive effects (Uitermark 2015).

Bakker et al. (2012) draw upon the “CLEAR model” to find a basis for systemic thinking about potential interventions by facilitators. They can provide potential participants with resources or remove barriers (the “Can do” factor). Bakker et al. distinguish three resources: money, time and skills. One could also add social relations and contacts and the energy of the initiators and participants to these resources. Facilitators can reward and stress the positive pay-offs to motivate people (the “Like to” factor). According Bakker et al., the most common motivations are: it feels as a civic duty, it is fun and it helps to solve problems. Facilitators can stimulate these motivations through positive incentives and rewards, and by providing information and recruiting participants. In successful connective coalitions, it is important that motivations are intrinsic and contributions are voluntary. People are more likely to volunteer when they feel welcome in a pleasant atmosphere in which their needs are satisfied. Facilitators also have a role in preventing demotivation because of inadequate and slow procedures, for example. Thirdly facilitators can activate social networks in order to create more mass (the “Enabling to” factor). They can link early initiators with other potential participants (that have useful resources) or relevant organizations (housing associations, social welfare organizations, governmental agencies, etc.) and can help make arrangements with these actors. Finally facilitators can affect the degree of confidence initiators and participants have in an adequate response of public and political officials (the “Responded to” factor). Bakker et al. observed that citizens became frustrated with the slackness of response by civil servants and the inflexibility of procedures. Quite often, in the beginning citizens encounter enthusiasm and freedom, but after a while restrictions and time-consuming procedures prevail.

However, citizens do appreciate the engagement of facilitators in different stages. Obviously, they are not aiming at individual civilians with an idea, but at a coalition of individuals with the same desire or motive. So the public authority is not facilitating a personal interest, but the broader interest of the neighbourhood, target-group, etc. According to Bakker et al. (2012) facilitators do have trouble in finding a suitable facilitating role. They heavily emphasize the provision of financial resources and use formal language and bureaucratic procedures. Facilitators also have trouble in differentiating their role according to the needs of different connective coalitions. In connective coalitions, submitting and experiencing are key factors. There are no fixed methods or guidelines for building connective coalitions. In these coalitions, ideas and actions are very close together, just like thinking and doing. Time and time again it is learning and trying that works, and even more, improvising, so as to make use of the energy and arising opportunities. Often work and practice methods are chosen to which everyone in his or her own way can contribute, e.g. organizing open spaces, marketplaces, festivals and brainstorming.

Bakker et al. also stress the importance of civic skills (e.g. basic verbal, social and organizational skills) that are required to start a connective coalition and the need for training and counselling when certain groups lack these skills. People are taken seriously when they are treated with respect and when their limitations are also taken seriously. On the other hand, Bakker et al. observed that when people do engage in connective coalitions they naturally further develop their civic skills. When public professionals and officials take over the initiative, connective coalitions will lose their character of self-governance. "One of the main challenges for facilitators is finding a good balance between interference and paternalism on the one hand and negligence and lack of empathy on the other hand" (Bakker et al. 2012). So, there is much to experiment on, discover and learn within and about this type of coalition.

### COALITION PLANNING IN A WORLD OF CHANGE: NEXT STEPS FOR RESEARCH AND DISCUSSION

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>> The sharing economy, social entrepreneurship, public participation, self-organization and direct democracy are recent trends, terms and concepts that lead to a new interplay of governmental, business and civic actors. Forming coalitions with these diverse actors are key factors in meeting current interrelated challenges. Coalitions are defined by five key elements: ambitions, actors, arenas, actions and arrangements. Urban planners, traditionally linked to the government, are now experiencing a change in their role and playing field. More and more of them will be positioned as coalition planners on the interface of established institutions and individual aspirations. Since every actor has its own style, culture and interests, this is not a self-evident, but a

complex activity, with a stress on the need for a better situational awareness and a broader repertoire of actions that correspond to these situations. Furthermore, let us emphasize the importance of a new vocabulary to develop a common view and language for sharing expectations and considerations. Especially in newly created and spontaneous arenas our language and behavior do not always match, because it takes time to acquire new repertoires, reflect on our actions and avoid reflexes.

Here, we have introduced a plural perspective on recognizing, building and evaluating coalitions. We distinguished three arenas (established, created and spontaneous) that correspond to three types of coalitions (directive, collective and connective) with unique characteristics and related institutional roles (directing, partnering and facilitating) that give shape to different interplays. We considered coalitions as dynamic entities that can change over time into another type of coalition. Change may be a specific aim-induced strategy for or an unplanned consequence of the course of the process. For, as John Lennon sang in the track “Beautiful Boy”, “life is what happens to you, while you’re busy making other plans”. For governmental authorities traditional, more directing roles on specific themes in urban planning will not disappear, but there will be more partnering and facilitating roles added. Different elements of the three types of coalitions can be combined successively or simultaneously in a blended coalitional approach. Building such an approach is an open and deliberate consideration that has to be discussed explicitly among the actors involved. The challenge of coalition planning is to be able to switch between coalitions and to bridge and mix them to reinforce the sometimes contradictory relationship between established institutions and individual aspirations.

The next steps in the research are to explore the factors or conditions of success for each type of coalition and to define a matching repertoire of actions and steps in building a specific type of coalition. What are best and worst practices for each type of coalition? Could there be an indicative set of questions that will help to figure out what type of coalition matches with a specific challenge or context? What are specific implications for the governmental role? And in what way do the different types of coalitions influence each other? Furthermore, we need to investigate the factors and situations that cause a change in the type of coalition. For example, what makes directors and stakeholders working in a directive coalition (un)intentionally transfer to a collective coalition? Is it possible to recognize typical moments of transfer? What interventions are needed to successfully transfer to another type of coalition? And what are common reflexes that prevent them from changing and adapting? Another interesting field of research is how actors are able to simultaneously apply all these different repertoires of actions. What coalition strategies could be used? What are the tensions felt when simultaneously working in directing, partnering and facilitating roles on the interface of established institutions and

individual aspirations? How can coalition planners address these tensions and help appreciate and combine both institutional and individual approaches? And how can actors remain authentic and trustworthy, while switching from and bridging between coalitions and roles? And, finally, how do they communicate about these combinations and changes? Several preliminary anchor points in research are presented below.

Many authors underline the sustainable, regulatory and stable character of institutions. In line with Van Meerkerk (2014) and Lawrence et al. (2002) we also emphasize the volatility and transience of institutions. Connective and collaborative coalitions can produce “proto-institutions” (newly constructed institutional arrangements) that interact with established institutions that take part in directive and collaborative coalitions. “The proto-institutions can be understood as temporary and can provide a de-institutionalization of existing institutions that have a stable and long-term character. Old and new institutions influence each other, and from this co-evolutionary process, both can mutually adapt themselves into a search for a new operation logic” (Van Meerkerk, 2014; p105). This corresponds to the view on institutional change of Van der Steen et al. (2015): We can become comfortable with new approaches without opposing and confronting old ones. Change is in their view nothing revolutionary, but something gradual. Also Brafman and Beckstrom (2006) write about an optimal mix of centralized, hierarchical institutions and decentralized networks. This interaction between opposing ways of working produces tensions and will not always lead to institutional co-evolution. If it does, Van Meerkerk (2014) recognizes three stages: dissociation, parallelization and synchronization. That last stage is interesting for further research. It means that actors in different coalitions need to have the ability to deal with persisting tensions and paradoxes and therefore with inconveniences and discomfort.

These tensions and paradoxes are most recognizable on the interface of established institutions and individual aspirations, because that is the demarcation or fracture line of different values, cultures, etc. Tensions can be found in paradoxes as “being in control vs letting go”, “regulating vs disrupting”, “autonomous vs interdependent”, “predefining vs becoming” and “exploitation vs exploration” (see also Rauws, 2015; Alfasi and Portugali, 2004 and Boonstra and Boelens, 2010, for typical tension fields in planning that are already ingrained in the word “planning” ). In the previous sections we argued about embracing the paradox and value both ends. How does this relate to the post-contingency approach of Zuidema (2011)? Can we find inspiration in “polarity management”, “relational dialectics” or even “syncretism” and the symbol of “lemniscates”? Another interesting theory is ambidexterity (see Raisch et al., 2009 for an overview). In this view we can call institutions in which both worlds are apparent “ambidextrous”. These institutions are able to be efficient and in control in the short term (exploiting) and to develop



innovative ideas and techniques for the longer term (exploring). Especially for governmental authorities this could be a promising direction considering the twofold expectations by citizens: being political accountable for spending public tax money, not taking risks and being consistent and confident in making legitimate decisions versus trusting citizens to come up with initiatives, experimenting with new disorganizing and informal modes of governance, making differences and thinking out-of-the-box to evoke movement.

Considering this, could a “post-policy approach” be the next step to “open policy approaches”? An approach in which complexity and uncertainties are not reduced, but offer a reason to better connect with the social environment? An approach in which it is possible to work inside-outward and outside-inward, combining internal politics and external dynamics: being not less ambitious, but containing less pre-defined and detailed policy criteria, and more stimulating constraints and simple rules (Sull and Eisenhardt, 2015). Would a post-policy approach make it easier to cope with different interacting institutional arrangements and accept the areas of tension? De Caluwé (2015) writes about dealing with tensions in both organizations and individuals and observes a reflex of hiding behind demarcation lines, avoiding and ignoring the paradox. What can we learn from this for coalition planning and coalition planners? Connecting one with the other is often impossible using standard procedures and requires a creative, tailor-made and new approach. How can we come up with interventions that invest in both sides of the paradox? What would be intermediate words and frames (see, for example, Arts and Tatenhove (2004) that combine old and new policy idioms)? And what can we learn from jazz musicians, play-actors and other artists that are used to improvising between a set script and unexpected reactions from fellow artists or the audience and yet manage to come up with something new and creative (see also Balachandra et al. (2005) and Boutellier (2005)? How do they perceive mistakes in a creative process? And what can we learn from children who play, try, fail and go on. Or from approaches such as “gamification”, the use of thinking and techniques designed for gaming in non-gaming settings, like organizations (Verloop et al., 2015)? It brings us in a more non-linear, plural, interrelated and eclectic world-view.

We started this chapter with statements that are related to a new reality in which more and more individuals organize themselves in collectives and connectives, as opposed to the traditional institutional ways of working. Now we can state that it is not about a choice for either one of them, but about embracing both. In order to be effective we cannot have one without the other. It takes practice to search for intermediate vocabularies and repertoires. There is no script or “the best way” to do this. It is improvising at the interface where “provisional can be seen as the new professional”. This does not make coalition planning easier, but possibly more enjoyable. As Passenger expresses in the song “Keep on walking”:

“And I thought to myself oh, son, you may be lost in more ways than one, but I have a feeling that it is more fun, than knowing exactly where you are”. Coalition planning is about a plural picture, about communicating when you are lost, about combining planned and unplanned results and about making the map while discovering the road together.

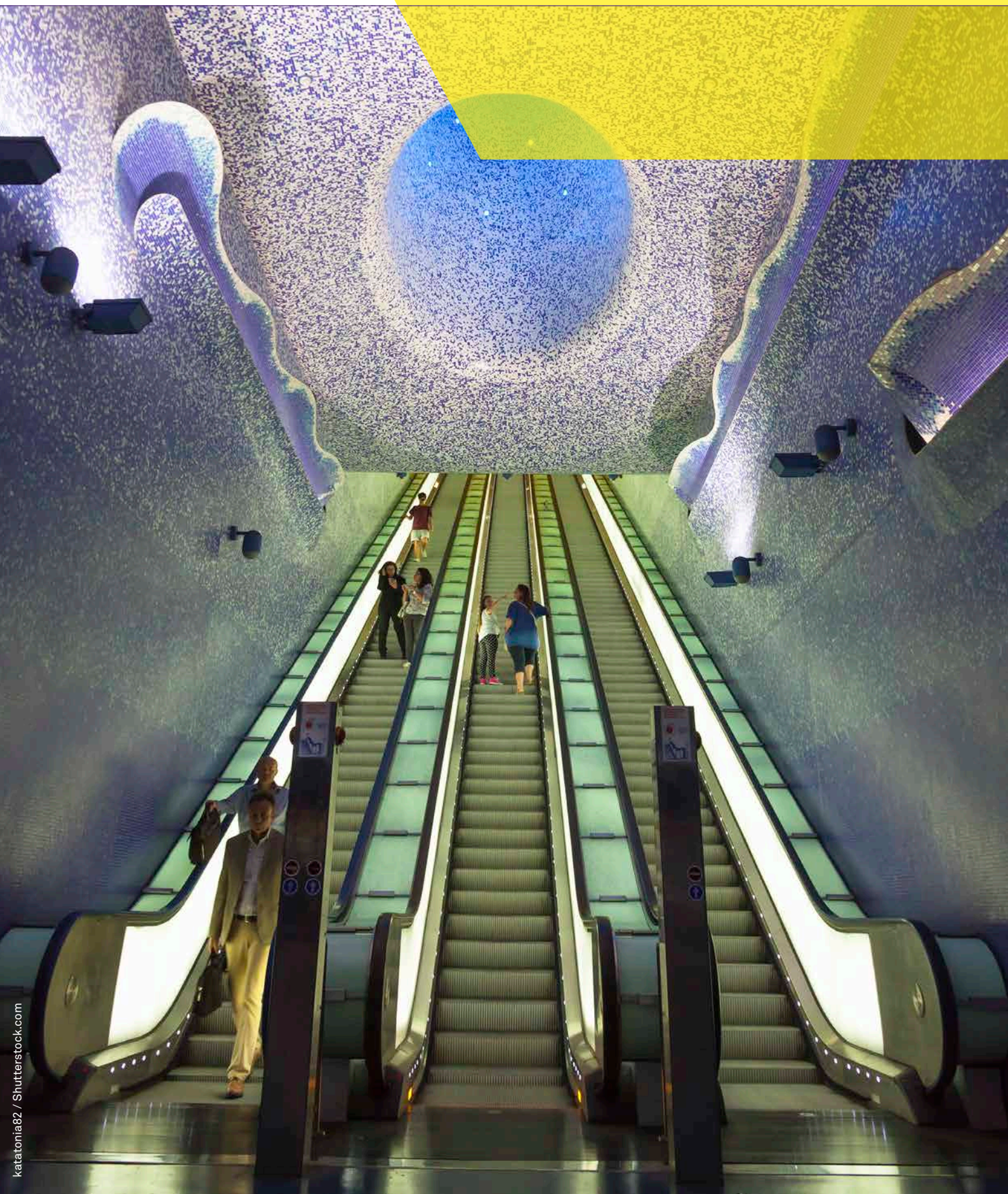




# EPILOGUE









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Luuk Boelens and  
Gert de Roo

As stated in the introduction, this book has searched for alternative paths of planning, which have dominated our profession until now: the technocratic planning trying to control our world, even its most unpredictable and complex parts and bits (Wagenaar 2011, Rydin 2003), the sociocratic planning trying to mediate between the various, centrifugal powers and interest, even between its most obstructing components (Innes 1995, Sager 1994 ) and the dominance of the neoliberal policy environment within which planning is positioned, and its implicit reference to growth (Tasan-Kok & Baeten 2012). We are convinced that these initiatives are not sufficient anymore to deal with the complex settings of the present networked world (Boelens 2009, De Roo & Silva 2010, Boelens 2010, De Roo, Hillier van Wezemael 2012). Also ideologically shaped planning attitudes of the past narrows our scope for alternative views to understanding the world (Sager 2011). Therefore we are searching for planning alternatives beyond that kind of (strategic) plan, beyond that kind of (collaborative) government, and beyond that kind of (neoliberal) attitude, in order to deal better with the turmoil of urban environments, and fuzzy challenges of their 'undefined becoming' (Boelens & De Roo 2014).

We have introduced three lines of planning thought which have structured this book accordingly:

- non-linearity in planning, not as a curiosity or exception, but as a regular, usual and even founding starting point, resulting in a situation where planners acknowledge that it is not realistic to grasp fixed and/or mutually agreed futures, thus becoming in real need to deal with a kind of possibilities and options beyond the techno- or sociocratic approach;
- co-evolutionary planning, as an attempt to deal with processes of change which structures and transforms jointly while being mutually dependent. Co-evolutionary planning stresses therefore the interdependency of structure and function while going through processes of change. This is a non-linearity not per se, but ultimately, while all these non-linear developments are somehow also embedded in specific contexts, and in return, dissipatedly influence these contexts towards a new kind of equilibrium;
- actor-relational planning, as a new kind of strategy, or better still 'planning tactic', to deal with these co-evolutionary mechanisms, from an actant-network operational practice approach, including (human and non-human) actors, while as well the subject, as context is reciprocally part of the current planning challenge in question.

Each of these three lines represents new kinds of ontology, attitude and practical method to deal with the complex and undefined challenges of tomorrow. Moreover this book has not only dealt with the theoretical part of these challenges, but also with the practical issues of these new lines of thought. So

coming near the end of this book, the question comes up, which new insights have evolved along to these alternative lines of planning thought. Are we able to set some pickets to proceed along these three lines; theoretically, as well as practically?

The contribution of Erwin van der Krabben & Peter Ache is at least already highly paradoxical in this respect. Dealing with the fuzzy and unclear solutions for the retail and property markets in various Western European Countries, due to the ongoing financial, economic and government crises since 2008, they conclude that there are no magic formulas. Instead of getting to a more fundamental understanding of those crises and coming to a new alternative for planning in a fuzzy, uncertain world, they conclude that the way municipalities try to deal with their financial problems, and the way metropolitan regions try to restructure regional office markets seem to be highly pragmatic. At its best there is some kind of co-designed approach between the municipalities (as in the region Hannover) or between the governments and retail sector (as in some Dutch cases), but this is no guarantee for success, let alone in the long run a kind of 'strategic navigation' towards a new kind of co-evolutionary equilibrium for the better. Possibly there are some signs that planning takes a form of negotiations between various actors (especially those with resources to develop projects), but further down the line there are always formal regulations needed to secure outcomes for all parties involved. And although this wouldn't be contested in an actor-relational or co-evolutionary approach of planning, without going into detail Van der Krabben and Ache already conclude that those, so-called 'soft planning approaches' would for sure not work properly in times of crises, while in these times hierarchical, command-and-control planning would be needed to do the trick. However, since neo-liberal politicians in Western European countries no longer back up those kinds of top-down planning approaches substantially, they end up with a somewhat pessimistic view of the planning horizon for the near future.

More optimistic in this respect are Frits Verhees & Jos Arts in their contribution about the re-use of the age-old instrument of public-private-partnerships (PPP) for spatial and infrastructural planning. They conclude that the use of PPP has divided the Netherlands in two worlds of planning; on the one side containing a number of government actors driven by a collaborative, but still command-and-control planning idea, and on the other side various private parties and citizen's interest groups trying to jointly shape planning on the basis of real means (resource and knowledge). Freed from their traditional 'contract-driven' and 'rather technical-rational framework' they argue that PPP with its key elements of 'added value creation through collaboration (of resources, knowledge and rules, ed.)', 'mutual commitment and risk sharing', 'performance focus' and 'life cycle approach' could overcome this divide, and could turn into a highly qualified and welcomed instrument for a complex adaptive planning approach.

Sensitive to the altering influence exerted by context, PPP could help to promote the variety of the involved (f)actors of importance and the interaction between those actants, towards a selection of actors/strategies through means of incentives and rules, in a kind of co-evolutionary process towards the *mutual* better. PPP would give 'actors a frame to organise themselves, to adapt to inevitable changes over time, to absorb these changes and to steer developments in the desired direction'. However it remains unclear what this 'desired direction' really is, and if this 'desired direction' would also be subject of the a-linearity of planning (and therefore 'undefined becoming'). Moreover Verhees and Arts introduce the idea of non-linearity especially in the realms of meta-planning, to stimulate context depended self-organization and co-evolution, while the PPP-projects themselves are fixed again with circular, technical (be it procedural) goal oriented approach of pathdependent planning. So how to deal with PPP in a real fuzzy world on all levels of complexity remains for the moment still unclear.

More outspoken here are Raoul Beunen, Martijn Duineveld and Kristof Van Asche. They give an extensive overview in a ten point planning revitalisation programme, including a live long planning education program and focussing on a greater planning reflexivity, based on the fundamentals of an Evolutionary Governance Theory (EGT). These range from rethinking the academic discipline to become less applied and more reflexive and analytical, towards the plea to foster experiment and allow diversity by involving different actors in the planning process. They include pleas to prevent rigidities, to untie the strong links between governments, companies and scientists, to abandon the generic rationales in different contexts and accept that the living society is subject to planning, not the other way around. This in order to involve many other actors, individuals and organisations, include and accept other disciplines and groups in planning, allow creativity, diversity and flexibility as the pre-requirements for planning, and plan without the label of planning. As such this Theory of Evolutionary Governance is full hearty at pace with the lines of a-linearity, co-evolution and the actor-relational approach. This challenges planners, theorists and planners like wise, to develop proactive and operational tactics from here.

The same goes somewhat for the contribution of Frank van Oort, Nicolas van Geelen and Helmut Thöle, with respect to their insightful analyses in the skill-relatedness, FDI and need for multi-level governance in Zuid-Holland, the Netherlands. Although they also depart from an a-linear perspective (in this regard the unpredictable rise and fall of industries, and the volatilities of the post-modern economy), and although they also depart from a specified co-evolutionary economic geographic perspective (for instance the Eurodelta in this respect), what their analyses would exactly mean for a new co-evolutionary planning policy over here, remains unclear. Indeed we need to avoid a one-sized-fits-all strategy, adopt a multi-level framework policy, move from quantity

goals, towards quality objectives, and a knowledge driven regional economy. But what would it mean for a more proactive a-linear, adaptive planning for the near future? Even when we would concentrate all efforts on sticky places in a slippery space (Markussen 1997), much remains fuzzy, volatile and uncertain in the current global-local (thus '*glocal*') setting.

However the remaining contributions in this book, and each in their way, offer still preliminary, but possible outlines to deal with these kinds of slippery, undefined becoming. Several lines of thought pop-up over here, which might be grouped in three main planning strategies and tactics.

The first one is somewhat incorporated within Jessica de Boer's and Christian Zuidema's call for an area-based approach, in which (in their case) ongoing and partly still undefined sustainable energy transitions could be physically integrated in a kind of 'conditional (spatial, social, political, cultural, economic...) landscapes'. These should support potential area-based initiatives, contribute to the diversification of energy transitions and to new institutional capacities to govern these upcoming and highly self-organised potentials. De Boer and Zuidema embrace co-evolutionary, adaptive planning, and keep good eye on localised initiatives, which are conditional in terms of transition management. Therefore planners should integrate these area-based niches in overall strategic insights and strategies, which should frame these fuzzy local initiatives, or induce their physical embeddedness in a kind of an overall, but on the area characteristics based (transition) frame.

In a more or less similar way Gert De Roo focuses on frames or conditions wherein self-organization might occur. As according to De Roo self-organization cannot be internally controlled and would pop-up independently at unexpected moments in time and space, the only thing planners could do to is to set boundaries in which self-organizations wouldn't only move freely, but could also serve as attractors where self-organization processes could respond to. Here De Roo argues that planners are able to relate to processes of undefined becoming, by not only careful condition planning to prevent the so-called 'tragedy of the commons', but also by supporting or perhaps triggering such processes to the benefit of us all. In other words: planners need to frame the institutional reality in such a way that self-organization could flourish and (co)evolve.

At the other (second) end of the spectrum Beitske Boonstra and Maurice Specht take the position that although self-organization cannot be controlled internally, planners could nevertheless become a respected partner in these processes, in order to help or induce those processes towards more resilience and embeddedness within their (changing) surroundings. They depart from the conviction that everyone is in fact a planner, articulate a vision for the better, and mutually interfere this vision with others. Nevertheless professional planners could bundle them into new coherences around meaning and make



them transparent in such a way that other actors can further build on these assemblages, by adding up with new interferences and emerging networks. Here Boonstra and Specht take in fact a very prudent stand, concluding that the main challenge for professional planners would be to watch very closely how interventions are developing and to co-evolve, learn and go from there. In a more or less similar way Martine de Jong claims that uncertainties and complexity cannot be reduced. They are only manageable by starting small and learning from it, from the bottom up. Nevertheless, more than Boonstra and Specht, she sees a new role for planning working on the best possible interface of institutions, networks and individuals in the collaborative setting of coalitions. The challenge of the urban planner would be – in her view – to stimulate those worlds, the institutional settings and new, self-organizing coalitions in such a way that they would not frustrate but strengthen each other. In this case she asks for an open, but also precise focus, while the difficulty of change would not self-evidently stimulate the development of new ideas, but mostly only in escaping the old ones; leaving us further away from where we have originally started.

A possible third line of thought starts possibly with Martin Dijst and Antje Gimmler. They show that a change of places and times (in their case while being mobile, but according to our view also in cases where there are rapid transformations, turns and volatilities) are by definition accompanied by a change of context. Therefore they plea for focussed situational concepts in time and place, where the anthropological need of negotiating the inner- and the outer-orientation are meaningfully incorporated. Communicative and collaborative planning should deal with this, although they miss – according to Dijst and Gimmler – the substantive dimension of the relational interactions between people and spatial configurations of land use. To include these volatilities in actor-relational planning ideas they propose to rely more on ‘real time’ information (GIS, i-cloud, facebook etc.) in order to develop real time feedback on opportunities to affect people’s social connectedness in cities. It would mean that adaptive and co-evolutionary planners need to develop concepts and systems in which this belongingness and (possible) new ‘connectedness’ between (changing) context and action would be included. In the same way also Jenni Partanen & Anssi Joutsiniemi opt for a kind interactive approach of the two lines of thought mentioned before. They emphasize the role of planning as an enabling and steering, rather than a controlling and regulating device. At then one hand planning could support creativity, innovations and the self-organization of individual actors to promote the performance and benefit of the whole ‘eco-system’ in cities. But at the other hand, and according to Partanen and Joutsiniemi, planning could also provide information on the predictability and unpredictable processes upon which the agents and active micro level actors may adapt. In should mean that planning should avoid the issues that will evolve to specific directions anyhow

and emphasize the requirements for small manoeuvres calling for flexibility, adaptability and recursive nature in future planning, aiming at a more thorough understanding of the identity and unique characteristics of the place. With this mixed and situational complexity-instrumental approach in mind, Peter Allen distinguishes between a dynamical system, which may have several different possible configurations concerning the same set of variables and a longer evolutionary complexity, where new variables and dynamical systems can emerge over time. Thus Peter Allen distinguishes between a highly volatile complexity and a more long term (co-)evolutionary complexity. Both will influence each other reciprocally, while a system of co-evolutionary agents will automatically lead to the emergence of successive structural attractors (particular dynamic systems) and the other way around; structures will emerge from messy, shifting networks of people. Therefore planners need to take both complexities into account, as well as their constant interactions. Planners should not only be aware of the self-organizing initiatives and coupled decisions by multiple actors, but also of their possible fit in the long run within co-evolutionary perspectives of a specific region or theme. The latter is according to Allen largely a tale of changing cooperation and complementarity, in reference to those innovations. It would mean a kind of mixed-scanning and multi-sided planning approach, but this time made possible by the new possibilities of real time communicative technology.

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## A MATRIX OF UNDEFINED BECOMING

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>> As such we can conclude that none of the contributions mentioned point in the same direction. Nevertheless all contributions could also serve complementarity in sketching an a-linear, co-evolutionary and actor-relational picture of the future. They seem mainly to differ in their interpretation of the degrees of complexity and especially in their strategies or tactics how to deal with it. In other words and taking Peter Allen's remarks in mind – as well as with regard to topic, as with regard to multi-interests – there occurs a difference within the contributions with respect to the degree of fuzziness, a-linearity and volatility, possibly depending on short or long term planning realms, and possibly also depending on the openness and contingency of the issues at hand. In that sense we can group the aforementioned contributions in four planning attitudes of performance driven, conditional, engaging and co-evolutionary planning, each asking for a specific role or attitude of planning depending on the contexts (actor-network settings) and object of planning (topics or challenges). This results in the following matrix of the so-called 'attitudes of undefined becoming', in which each of the aforementioned strands will take their own position of co-evolutionary planning too.

The contributions of Erwin van der Krabben, Frits Verhees and Frank van Oort et al. seem to direct towards a kind of performance driven planning, regarding

**FIGURE 13.1**  
Planning-attitudes of undefined  
becoming.

ACTOR- NETWORKS	dynamic	Conditional	Co-evolutionary
	static	Performance	Engaging
		static	dynamic
	TOPICS/CHALLENGES		

to respectively the crises in the retail and property market, collaborative infrastructure planning and/or the (co-)evolutionary economic competence of a specific region. In comparison to the other contributions they operate in a more or less relative fixed actant-network field of the usual suspects of planning, with specific objects in mind. The goal seems to be more or less clear, as well as the partners who have to be involved in the planning process. Although context and settings could become highly volatile at pre-undefined moments, the point on the planning horizon seems to be set within certain margins, as well as the actor-networks who have to be restored, fixed or made to get there. Despite 'this way of getting there' could change massively, navigating through this degree of complexity would require a highly qualified performance driven planner, who is however open to discourse, collaboration and highly sensitive, e.g. adaptive to changing circumstances.

Different is this in situations and planning attitudes of De Boer and Zuidema, and De Roo. They look for planning frames, physical settings, guiding principles, development strategies, embedded landscapes... let's say conditions under which self-organizations can or could flourish. Those conditions are focused on something – the just city, a more equal balance between the economic and ecologic goods, a sustainable energy transition etc. – points on the planning horizon, strategic ends or goals, which are mutually, or politically agreed upon; possibly even induced by a visionary planner. Nevertheless the specific actor-networks are not clear; on the contrary even. The frames or conditions are set to induce self-organization, to embed these in a certain context, which in turn could be set by those organizations or even to clear their way by breaking down the institutional lock-inns for that kind of co-evolutionary development. That said, also the ten point programme of Raoul Beunen, Martijn Duineveld and Kristof Van Asche could fit within this kind of planning attitude. Planners should untie the old links between governments and its usual settings; they should involve many other actors, and stimulate a setting, which allows creativity, diversity and flexibility as the pre-requirements of undefined becoming. So those settings, frames or pre-requirements should involve and allow as many actor-networks as possible, and/or surprisingly, thus not knowable beforehand; however all to a certain goal or with a certain object. Moreover planners during the process should even integrate the various (self-organized) initiatives, or challenges for new crossovers, which would only pop-up or come up along the way, within and/or dissipatedly co-evolving with

that frame set before. And indeed, as De Boer and Zuidema allude, landscapes – not only understood in the physical sense, but also in a socio-cultural sense, economic-politically and as mind-frames etc. – could do the trick over here and form the basis of that frame. Planners should become thus highly qualified, multi-dimensional ‘landscape interpreters’ to condition or organically guide new possible or undefined futures for those mind frames.

Nevertheless, this could not be sufficient, while it already includes (and therefore excludes) much complexity, a-linearity and fuzziness within and beyond. Therefore the other way around would be to focus on the self-organization itself, the evolving actant-networks and their urban or physical assemblages themselves. That is what Boonstra, Specht and De Jong are driving to; closely watching how (self-) organizations are evolving, learning from it and co-evolve from there. At the beginning objects, goals or strategies of the initiators could be clear or fixed, but usually and in our volatile, networked society even more, those objectives, interests and therefore strategies evolve over time, depending on changing circumstances and the dissipative evolution of the actant-network itself. Therefore in these cases planners should engage with this evolving process, trying to become a respective part of those actant-networks by helping them with planner’s own expertises, towards possibly a more resilient or robust urban assemblages. As De Jong claims that could mean that existing institutional settings need to be adapted to changing circumstances. However also here, and according to De Jong one should start small, from the bottom-up. The same plea have Partanen and Joutsiniemi when they call for small manoeuvres of adaptability and flexibility. These analyses, and planning attitudes are regularly focused on radical, but concrete innovations, which occur in niches and more or less small and or surveyable environments. Those objects and interest could change radically during the evolution of these initiatives, but generally involved innovative actant-networks are known, while those radical initiators – as stated by Boonstra and Specht - are a few. Only when a radical breakthrough is acquired, new actors could come in, but at that moment it would require another planning attitude beyond learning from, facilitating or co-evolving with the new or common better. Some would say that this would need a kind of transition management, but this planning attitude would oppose that because it couldn’t work and operate from the outside-in (as a kind of neutral manager), but only from within, as an involved partner of the process itself.

The fourth, and therefore most fuzzy planning attitude of planning of undefined becoming, would be to incorporate the two. It would be applicable in case where both the object and topics, as the involved actant-networks and interests would be highly unclear, volatile and complex. This would be the case in Peter Allen’s long term co-evolutionary perspective, while content and context interactively could go everywhere at anytime; thus hardly predictable or plannable. The

same goes for Dijst and Gimmler's passers by society, which would be highly fugacious, floating and slippery. Nevertheless in this reality of speed, mobility and change, they try to find a handhold in actants' need for belongingness. Precisely over here new actant-relational assemblages and new alliances would be needed and thus planned. But it remains unclear how sustainable, or resilient these assemblages would be. While aviation is booming, internet, facebook and twitter are everywhere, going back to the classic and slow world of cycling seems not to be the answer expected. Therefore this floating situational realm of planning of undefined becoming, where ever changing context and ever changing interests needs to be reciprocally confronted towards 'connectness' – also with regard to the grand social questions of tomorrow (such as climate change, world depletion, cultural clashes etc.) – still needs to be rethought and undefined planned thoroughly.

To that end we would like to conclude with some general conclusions with regard to pro-active and a-linear planning of tomorrow in an ocean of change, fragmentations and contingency:

- 1** There is a need to estimate and valuate the evolving interaction of contexts and topics, situational and over time. Depending on the fixation and openness of each of these items apart as well as in interaction to each other, defining the degrees of complexity, there seems to be a need for a more performance driven, conditional, engaged and, or co-evolutionary attitude of planning. Each of these attitudes requires various strategies or tactics of variations and degrees of undefined becoming.
- 2** That said there is not one preferred attitude or approach to planning, but there are several. There is indeed a need for a multi-planar navigation in an ocean of change (Hillier 2006). But what is more each of these attitudes or approaches can't be applied strictly and separately once chosen. Over time contexts and topics could change, interfere with assemblages of actants and agents reciprocally and would need another approach of planning.
- 3** Moreover each of the attitudes mentioned influences each other reciprocally. The success or failure of performance driven planning for one part, would have a major impact on the conditions or engagements needed elsewhere in the overall process of undefined becoming, let alone on the floating co-evolutions of settings and interests. Even more performance, conditions, engagements and co-evolutions could develop into a new and still unknown realm of complex planning.
- 4** Nevertheless while performance driven, and conditional planning requires a more or less adaptive planner, with an open eye for changing circumstances inside-out, the engaged and co-evolutionary attitude of planning ask for an approach from within, albeit the last one combining the two (as well as an inside-out, as an outside-in view). However precisely that kind of planning from within is regularly unknown and a hardly experienced field of planning. Especially new experiences and research here would be extremely needed to enhance planning of undefined becoming.



- 5 That would need action planning, breaking down all the barriers not only between the various disciplines of planning, but also between the barriers of practice and theory, and between the public, business and civic realms of planning; co-evolving strategic, entrepreneurial and advocacy approaches together in one big melting pot. But what is more it would need that academics and professionals come out of their ivory comfort zones and develop research in real life situations, as the other way around: practice trial and error methods within academic paradigms, vice versa. <<



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# Spatial Planning in a Complex Unpredictable World of Change



Gert de Roo



Luuk Boelens

This book is a message to be humble before truth and reality and to relinquish the idea of controlling them. Planners do not have that much control. In retrospect, it was easy to conclude that in conditions of constant population growth and with an economy in fairly good shape, a linear model of urban development would be relatively easy to maintain: the origin of the idea of certainty and control. The population in the Western world is no longer growing though; on the contrary, many regions and cities are facing population decline. Added to that, the economy is proving quite uncertain as well. The two together impact on spatial development.

This all means that we have to consider a fundamentally different perspective on the role of spatial planning and its position in urban and rural development. Instead of planning aiming to achieve controlled development, it might get more out of the various autonomous processes affecting urban and the rural areas. In addition to planners being experts or mediators, we might appreciate planners becoming managers of change, transition managers, adaptive responders and social entrepreneurs, supporting and guiding the various parties within urban and rural areas to find the positions which suit them best.

This book acknowledges these new identities and positions, with the planner acting as a manager of change. This book tries to present arguments in support of a discipline of spatial planning which adopts a different stance to the world, a more adaptive stance, and with a keen eye for self-organization processes: an eye for non-linear kinds of planning in a world of change.

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